A COMPARATIVE ANALYSIS OF TRADITIONAL VERSUS BLOCK AND ACCELERATED BLOCK SCHEDULED HIGH SCHOOLS OVER AN EIGHT-YEAR PERIOD IN A LARGE URBAN SCHOOL DISTRICT

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This study compared traditional, A/B and accelerated block scheduling and its effects on student achievement and attendance by comparing the differences in student outcomes observed before and after the adoption of block/accelerated block schedules. The independent variable was the use of time in a block-scheduling model. The dependent variables were student outcomes measured by nine indicators based on the Academic Excellence Indicator System in Texas: student attendance, graduation rate, dropout rate, percentage of students taking advanced courses, percentage of students passing all Exit-level Texas Assessment of Academic Skills tests, percentage of students taking College Admissions Tests, mean SAT total score of those students who took the SAT, mean ACT total score of those students who took the ACT, and percentage of students who are at or above criterion on the SAT or ACT of those students taking the SAT or ACT. Data from archival files from the Texas Education Agency's Academic Excellence Indicator System for each respective year of the eight-year longitudinal study was collected.

Scheduling models (traditional, alternating block and accelerated block) were investigated. The sample was drawn from the student population of a large urban school district in north central Texas, a district serving approximately 77,000 students. The

district has twelve regular high schools serving students in grades nine through twelve. All twelve regular high schools were included in this study.

The indicators were analyzed using SPSS multivariate and univariate analysis to compare the means, regression line slopes, and regression line intercepts for each type of schedule: traditional only, traditional prior to A/B block change, traditional prior to accelerated block change, A/B block, and accelerated block. The regression line, slopes, and intercepts were based on separate regression analysis where a school year was used to predict the AEIS indicators for each type of schedule.

With the exception of graduation rate, significant difference was found for all dependent variables.

I want to thank my parents, Edmond and Bernice Morrison, for instilling in me the belief that I can accomplish anything; my brother, Steve, for his support; and my husband, Michael, for his support and encouragement during this endeavor.

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CHAPTER 1

INTRODUCTION

Since the publication of A Nation at Risk (1983), the increased achievement of students has been a top priority for state and national policy makers. This report focused the attention of Americans upon the high school and began a period of inquiry, examination, and evaluation. Schools are continuously pressured from within and externally to increase academic achievement. Prisoners of Time: Report of the National Education Commission on Time and Learning (1994) informed the nation as to how ineffectively time was used in schools. The commission reviewed the relationship between time and learning in the nation's schools and reported that "time is the missing element in our great national debate about learning and the need for higher standards for all students." American public schools simply said: learn what you can in the time available. "The school clock governs how families organize their lives, how administrators oversee their schools, and how teachers work their way through the curriculum" (p. 4).

In an attempt to show accountable improvement, create more time on task, and allow for greater flexibility in teaching activities, block scheduling was developed. Block scheduling is a restructuring of the school day into longer segments of time that increases the daily instructional time and decreases the total number of subjects. A class that traditionally takes the entire year to complete is compressed into a half-year class. According to a report by The National Study of High School Restructuring conducted in 1993, one in ten high schools use some fashion of block scheduling and 15.4 percent of high schools surveyed have plans for implementation during the next year (Cawelti, 1994). “The six-hour, 180-day school year should be relegated to museums, an exhibit from our education past” (National Education Commission on Time and Learning, 1994).

The rationale for schools to change to a block schedule is varied. Increasing concentration of learning time, increasing enrichment activities for students, reducing the distractions students have while dealing with multiple subjects, allowing for concentrated distraction-free instruction and allowing students to investigate and discuss a subject in greater depth for increased retention are rationale for increased focused time. Increasing collaborative effort including interdisciplinary approaches for delivering instruction, sharing the load in preparation of materials in the cross-curricular approach of teaching, creating time needed for staff members to work together, and increasing enrichment activities for staff are rationale at block/accelerated block schools. The contention is adopting block/accelerated block scheduling will reduce the burden of focusing student attention on multiple subjects per day, develop new relationships among staff members, develop new quality relationships between students and teachers, and recognize the need for a better match between student learning styles that will increase critical and creative thinking skills.

There are three issues with which all schools are concerned: providing quality time, creating a positive school climate, and providing varying learning time (Canady & Rettig, 1995, November). Fragmented time occurs when students attend six to eight classes of “unconnected curriculum” each day or students are pulled from music or art to participate in an English as a Second Language program. The traditional period schedule depersonalizes schools, which hinders teachers in developing close relationships with students. A short instructional period promotes negative classroom climates. The most critical and unresolved time allocation issue that schools face is the indisputable fact that some students need more time to learn than others. The school climate is affected by the school schedule. Canady and Rettig state that disciplinary problems may arise when scheduled transitions take place (passing periods).

Superintendent Harold Guthrie, Spring Branch Independent School District, Texas, believes that to “improve student performance, high school restructuring must encompass these three major areas: organizational structure, content and pedagogy” (Garcia, 1994). Spring Woods High School, in Spring Branch ISD, formed a Restructuring Committee to examine scheduling alternatives and make a recommendation to the Campus Advisory Team. After the Restructuring Committee recommended an accelerated block schedule, Spring Woods High School began Staff Development incorporating content, pedagogy, structure and organization, with student performance.

The reliance on the Carnegie unit has made all students “Prisoner’s of Time” (National Education Commission on Time and Learning, 1994). During the past 10 years, high schools throughout the United States have implemented block scheduling to address curriculum fragmentation. The key component of block scheduling is longer class periods. Wasson High School in Colorado Springs, Colorado, adopted a 4x4 block schedule in 1990 (O'Neil, 1995, November) that led to smaller class sizes and allowed teachers to get to know each student better. Daily attendance, percentage of students making the honor roll, number of students pursuing four-year colleges, and number of course credits increased while the failure rate lowered. The limited data that is available about 4x4 scheduling agrees with Orange County High School (Virginia): students are completing more courses, grades are going up and more students are taking and passing Advanced Placement exams (Edwards, 1995, November).

After three years of thorough investigation and debate, Skyline High School in Longmont, Colorado, changed from a traditional semester schedule to a trimester schedule in the 1993-1994 school year (Stumpf, 1995, November). Classes are longer (70 minutes), students attend fewer classes (five) and the benefits are many. Student grades improved with a decrease in the number of failing grades. In addition, students are more focused as they have time to complete tasks that require more concentration. Teachers report that they have less hectic days and are less tired in part due to the smaller class size, and they now personalize instruction with active student engagement using labs and small group presentations.

Donald G. Hackmann, Principal, Center Middle School, Kansas City, Missouri, states that during the first year of implementing block scheduling, discipline referrals dropped more than 60 percent, suspensions declined proportionately, daily attendance increased from 92 to 94 percent and surveyed parents and students approved of the new block schedule. During this same period, marginal gains were made in the number of students on the honor roll and the number of failing students. Faculty morale declined during the first year due to the necessity of rewriting lesson plans and analyzing how effectively they used new teaching approaches.

Significance of the Study

This study explored the variables of nine criteria on which secondary schools are measured: student attendance, graduation rate, dropout rate, percentage of students taking advanced courses, percentage of students passing all Exit-level Texas Assessment of Academic Skills tests (TAAS), percentage of students taking College Admissions Tests (SAT and ACT), mean SAT total score, mean ACT total score, and percentage of students who are at or above the criterion on the SAT or ACT was evaluated. Scheduling models (traditional, alternating block (A/B), and accelerated block) were investigated.

Purpose of the Study

The purpose of this study was to investigate the comparative effectiveness of traditionally scheduled, block scheduled, and accelerated block scheduled high schools as measured by percentage of student attendance, graduation rate, dropout rate, percentage of students taking advanced courses, and percentage of students passing all Exit-level TAAS tests. In addition, the percentage of students taking College Admissions Tests (SAT and ACT), mean SAT total score, mean ACT total score, and the percentage of students who were at or above the criterion on the SAT or ACT were also evaluated.

Research Questions

This study focused on and was guided by the following research questions:

1. Is there a statistically significant difference at the 0.05 level for the percentage of student attendance between schools on traditional high school schedules and schools on A/B block/accelerated block schedules?
2. Is there a statistically significant difference at the 0.05 level for graduation rate between schools on traditional high school schedules and schools on A/B block/accelerated block schedules?
3. Is there a statistically significant difference at the 0.05 level for dropout rate between schools on traditional high school schedules and schools on A/B block/accelerated block schedules?
4. Is there a statistically significant difference at the 0.05 level for percentage of students taking advanced courses between schools on traditional high school schedules and schools on A/B block/accelerated block schedules?
5. Is there a statistically significant difference at the 0.05 level for percentage of students passing all Exit-level TAAS tests between schools on traditional high school schedules and schools on A/B block/accelerated block schedules?
6. Is there a statistically significant difference at the 0.05 level for percentage of students taking the SAT/ACT College Admissions Tests between schools on traditional high school schedules and schools on A/B block/accelerated block schedules?

7. Is there a statistically significant difference at the 0.05 level for mean SAT score between schools on traditional high school schedules and schools on A/B block/accelerated block schedules?
8. Is there a statistically significant difference at the 0.05 level for mean ACT score between schools on traditional high school schedules and schools on A/B block/accelerated block schedules?
9. Is there a statistically significant difference at the 0.05 level for percentage of students at or above the criterion on the SAT/ACT College Admissions Tests between schools on traditional high school schedules and schools on A/B block/accelerated block schedules?

Definition of Terms

The following terms are important to this study and are used as defined:

1. Accelerated Block has four instructional blocks of 90 minutes each that meet each day; the school year is divided into four quarters; a full credit is earned in two quarters; also known as 4x4, intensive, concentrated, or four-block.
2. Alternating Block Schedule is an eight-period schedule in which four classes meet ninety minutes each, every other day; also known as 8-block or 4x4 A/B block.
3. Block scheduling is a restructuring of the school day into classes much longer than the traditional 55-minute period; classroom time is increased and the number of classroom periods is correspondingly decreased so that the overall length of time is approximately the same.

4. Traditional high school schedules have 55-minute class periods that meet each day of a semester.
5. Advanced Courses is a count of the number of students who complete and receive credit for at least one advanced academic course in grades 9-12 (AEIS, 2000, October).
6. Attendance Rate is based on student attendance for the entire school year. Attendance is calculated as follows: total number of days students were present divided by the total number of days students were in membership that school year (AEIS, 2000, October).
7. College Admissions Tests include the College Board's SAT I and ACT, Inc.'s ACT Assessment. Both testing companies provide the agency with testing information annually on test participation and performance of the most recent graduating seniors at all Texas public schools. Only one record is sent per student. If a student takes an ACT or SAT I test more than once, the agency receives the record for the most recent SAT or ACT taken. Three values are calculated for this indicator: (1) The percent of examinees who scored at or above the criterion score on either test (1110 on the SAT I, or 24 on the ACT) which is calculated by taking the number of examinees who scored at or above the criterion divided by number of examinees; (2) The percent of graduates who took either College Admissions Test, calculated by the number of graduates who took either the SAT I or the ACT divided by the number of graduates; and (3) The average score for each (SAT I total and ACT composite), calculated by

taking the total score for all students who took the SAT I divided by the number of students who took the SAT I and the total score for all students who took the ACT divided by number of students who took the ACT (AEIS, 2000, October).

8. Dropout Rate (Annual) is the count of dropouts summed across all grades, 9-12, divided by the number of students summed across all grades 9-12. It is calculated by taking the number of students who dropped out during the school year divided by number of students who were in membership at any time during the school year (AEIS, 2000, October).

9. Graduates is the total number of graduates (including summer graduates) for the school year. The value includes 12th graders who graduated as well as graduates from other grades (AEIS, 2000, October).

10. The Academic Excellence Indicator System (AEIS) compiles a wide range of information on the performance of students in each school and district in Texas every year. This information is included in the annual AEIS reports, which are available each year in November (AEIS, 2000, October). The first AEIS report was printed for the 1990-1991 school year. The performance indicators in this study included:

    - Attendance Rate for the full year;
    - Dropout Rate by year;
    - High School completion rate (Graduation Rate);
    - Percent of high school students completing an advanced course;

- Percentage of high school students taking a College Admissions Test (SAT/ACT);
- TAAS Exit-level results; and
- SAT and ACT examination participation and results.

11. Texas Assessment of Academic Skills (TAAS): Students in Texas public schools in grades three through eight and ten take this criterion-referenced test during the spring semester of each school year. This study only included the Exit-level test that measures student achievement in reading, mathematics, and writing. Students are required to pass the Exit-level test in order to qualify for graduation from high school. The results for students who move from school to school within the same district are used for accountability purposes. The test results go to the last school where the student was tested (AEIS, 2000, October).

To facilitate this study, school records from a large north central Texas school district from the 1991-1992 school year through the 1998-1999 school year were analyzed. The district has twelve traditional high schools. Data for student attendance, graduation rate, dropout rate, percentage of students taking advanced courses, and percentage of students passing all Exit-level TAAS tests for each of these schools were evaluated. In addition, the percentage of students taking College Admissions Tests (SAT and ACT), mean SAT total score, mean ACT total score, and the percentage of students who test at or above the criterion on the SAT or ACT were compared to determine if there is a statistically significant difference between schools on traditional schedules and those on block/accelerated block schedules.

Limitations

This study was limited to high schools in one large urban school district in north central Texas that may limit generalizability.

CHAPTER 2

REVIEW OF LITERATURE

ALTERNATIVES TO THE TRADITIONAL SCHEDULE

> Learning in America is a prisoner of time. For the past 150 years, American public schools have held time constant and let learning vary…. Time is learning's warden. Our time-bound mentality has fooled us all into believing that schools can educate all of the people all of the time in a school year of 180 six-hour days. The consequence of our self-deception has been to ask the impossible of our students. We expect them to learn as much as their counterparts abroad in only half the time (National Education Commission on Time and Learning, 1994, p. 3).

Many school districts throughout the United States are researching alternative methods of instructional delivery in order to alleviate concerns of teachers and students. With traditional scheduling, teachers have approximately 150 students during one semester, teach five periods each day with the potential of five preparations and have one 55-minute planning period. Teachers and students are controlled by bell schedules, bus schedules, and the calendar instead of standards for student learning (National Education Commission on Time and Learning, 1994). Block scheduling is an alternative way to organize the school day. It is designed to encourage in-depth exploration of subject matter, interdisciplinary projects and different learning strategies (Harmon & Bratten, 1996) and to affect classroom atmosphere (Taylor, 1996, July 13).

The Massachusetts Department of Education, Commission on Time and Learning, cite five guiding principals in their study: time is essential for student learning; school time must be dedicated to teaching and learning; restructuring will be necessary; educators need time and support; quality learning opportunities are critical; and statewide standards with local flexibility are needed (1995). Although block scheduling is the breaking up of school time into blocks of time, it has recently been defined as a restructuring tool for educational reform (Wissahickson, 1996, July 2) and has proven to be effective in improving the quality of learning and creating a more positive classroom environment (Taylor, 1996, July 13). Traditionally, the average high school class period lasts 50-55 minutes and meets every day for one semester. Block scheduling contains periods of time that are two or four times as long each period but for fewer days. Only 11% of the nation's schools are utilizing block scheduling as a means of improving instruction and learning (Taylor, 1996, July 13). Students attend approximately the same length of time in each instructional delivery method.

Public Law 102-62 established The National Education Commission on Time and Learning (1994) which noted that the “uniform six-hour day, 180-day school year is the unacknowledged design flaw in American education. By relying on time as the metric for school organization and curriculum, we have built a learning enterprise on a foundation of sand" (National Education Commission on Time and Learning, 1994, p. 4).The Commission found five assumptions that are incorrect:

1. Students arrive at school ready to learn in the same way, on the same schedule, all in rhythm with each other.

2. Academic time can be used for nonacademic purposes with no effect on learning.

3. The pretense that because yesterday's calendar was good enough for us, it should be good enough for our children-despite major changes in the larger society.

4. The myth that schools can be transformed without giving teachers the time they need to retool themselves and reorganize their work.

5. It is reasonable to expect "world-class academic performance" from our students within the time-bound system that is already failing them (p. 4).

Structured learning time is the key concept underlying the Commissioner's 9-point Action Plan for improved student learning. The new Student Learning Time Regulations define structured learning time as time during which students are engaged in regularly scheduled instruction, learning activities, or learning assessments within the curriculum for study of the core academic subjects and other core subjects. In addition to classroom time where both teachers and students are present, structured learning time related to the curriculum may include directed study, independent study, technology-assisted learning, presentations by persons other than teachers, school-to-work programs, and statewide student performance assessments (p.2).

In “The Copernican Plan: Restructuring the American High School,” Joseph M. Carroll stated that more effective classroom instruction will occur when the schedule for students and teachers is reoriented to afford conditions that will provide better instructional practices (1989). The major features and advantages of his plan include "macroscheduling, improved knowledge retention, individualized instruction, interest/issues seminars, requirements for attendance and reasonable conduct, mastering more material, individual learning, and dejuvenilizing the high school climate" (p. 25). Students enroll in one four-hour class per day for 30 days and repeat this six times during the school year. As an alternative, students could enroll in two 100-minutes classes for a trimester of 60 days in length.

At the end of the 1989-1990 school year, the number of students graduating from high school in Virginia was less than 75% of the ninth graders enrolled during the 1984-1985 school year (Edwards, 1993, May). Only nine of 130 schools in the state attained a graduation of 90% or higher. 46% of all high schools in Virginia use some form of block scheduling (O’Neil, 1995, November). Over a four-year period, 192 of North Carolina’s 300 high schools adopted a block schedule (Edwards, 1995, November).

According to Cawelti (1995), there are seven critical restructuring elements: performance standards, authentic assessment, interdisciplinary curriculum, school-based shared decision-making teams, block scheduling, community outreach, and instructional technology. The National Study of High School Restructuring was built around five major components that comprehensive restructuring should reflect to ensure a cohesive working structure: Curriculum of the Future, Incentives, Technology, School Organization, and Community Outreach. Block scheduling is one component of School Organization that includes a plan to permit greater flexibility in planning learning activities for students, expedites opportunities for teachers to work with an assigned group of students, and affords a greater sense of community for students in very large schools.

With the publication of A Nation at Risk in 1983, the stage was set for the first wave of educational reforms that included standards and expectations for students and teachers.

BLOCK SCHEDULING CONCERNS

There are several concerns about block scheduling. One major one is absences of students and teachers. Students who are absent under block scheduling miss the equivalent of two days of instruction. In sequential courses, the logistics for making up missed material is compounded since the student may not be able to understand the material taught upon return.

When teachers are absent, it is often difficult to get a certified substitute teacher. Teachers miss classes for various reasons: field trips, conferences, participation in strategic planning and building meetings, supervise sports teams to away games, league, district and state championships as well as for personal reasons such as a death in the family, illness of a child, jury duty, and a myriad of other reasons. In block scheduling, students miss the equivalent of two days of instruction for every day a teacher is absent. All of this detracts from instruction at twice the current rate (Wissahickon, 1996, July 2; Ranken, 1996, January 18).

Students who transfer to a block-scheduled school (four subjects) from a traditionally scheduled school (seven classes) would be a great deal behind in the four subjects they chose to take. This is compounded with sequential courses. The opposite also poses a problem: a student who transfers from a block-schedule to a traditional schedule will be ahead of the class in the four courses in which the student was enrolled, but would have no background in the other three classes for which the student will add to the schedule (Wissahickon, 1996, July 2).

In Ambler, Pennsylvania, the latest model for a 4x4 block schedule includes four 90-minute classes which replaces two 49-minute classes with one 90 minute class, then eight minutes of instructional time is lost per class (Wissahickon, 1996, July 2). Teachers in Ambler cover less material that leads to another concern: Grade Inflation.

Proponents of block scheduling cite examples of how grades have improved under block scheduling. It has been stated that this improvement is because students can focus better on just four subjects at a time (Wissahickon, 1996, July 2). The problem with using classroom test results as a measure of student achievement is that there is no standard with which to compare. Teachers do not use the same tests from year to year. Within a given year, teachers teaching the same subject do not use the same tests. There is no indication of a sustained improvement in student achievement in standardized tests such as the SAT scores or Iowa tests. While the percentage of students on the honor roll has increased for block-scheduled students, there was a drop in Scholastic Assessment Test scores (Ranck & Thompson, 1996, January 18). After implementing block scheduling at Wasson High School in Colorado, math SAT scores dropped 11 points and the verbal SAT scores fell 17 points. At Parkland High in North Carolina, SAT scores were over 840 the previous two years before implementing block scheduling. The scores dropped to 772 the first year, in the fall of 1992. In the second year, they went up to 807 (Wissahickon, 1996, July 2). A common statement about block scheduling is that students learn less material but they learn it better (Wissahickon, 1996, July 2).

Proponents of the Copernican timetable claim that it produces better results than traditional full-year timetables. School-based grades are reported to be higher when this system is used (Gore, 1995). A comparison by the Ministry of Education of external examinations indicated that students in traditional (full-year) courses scored significantly higher on norm-based exams than Copernican-scheduled students in English, Mathematics, Physics, Chemistry, and French. Copernican-scheduled students scored slightly higher marks in Biology. A study by Marshall, Taylor, Bateson, and Bridgen (1995) found that traditionally scheduled students in British Columbia scored statistically higher in science and mathematics core and literacy items than their quarter-system counterparts.

One of the models of accelerated block scheduling has students taking four 90-minute classes during the day. If these classes are in sequential courses, there may be a gap of up to a year-and-a half before taking the successive course. Most students reach a saturation point within an hour; weaker students reach that point much earlier. Continuing instruction is counter-productive after the saturation point is reached which leads to a section of material being retaught for longer periods of time before it is absorbed to the point that a teacher can continue with the lesson (Wissahickon, 1996, July 2).

Teachers give students homework to provide needed practice and time to absorb and firm up the concept in memory. Under block scheduling, the teacher will need to do this in class before going on to the succeeding topic. Students will be using class time for homework instead of instruction. Over time, this will limit the quantity of material covered (Wissahickon, 1996, July 2) and allow less time for the content to be covered (Oven, 1998, June 16).

Some subjects would be better to be scheduled all year long such as instrumental music, band, orchestra, and foreign languages. Students in these courses benefit greatly by long hours of practice between lessons. It is futile for students to receive lessons consecutively without the long hours of practice between instructional time (Wissahickon, 1996, July 2). "Young voices get strained and instrument players' lips give out in an 85-minute period" (Voight, 1996b, February 18).

Human beings, as part of their nature, have difficulty sustaining concentration for extended periods of time. The average adult's attention span is less than 20 minutes "and it is even harder for students to pay attention that long" (Ranck & Thompson, 1996, January 18). Students may tune out completely to what is going on in the classroom. This is especially true for special education students. Since special education students are often mainstreamed into the regular classroom under the philosophy that every student should be in the least restrictive environment, the saturation point will have a major impact on the ability to mainstream a special education student (Wissahickon, 1996, July 2).

The material to be learned in accelerated block scheduling is presented at twice the rate of a traditional seven or eight period day. Students can get into difficulty twice as fast. The speed of presentation of new material will continue to be twice as fast as the traditional seven period day (Wissahickon, 1996, July 2). Textbooks are not geared towards the block-scheduling concept (Oven, 1998, June 16). In sequential courses, such as mathematics, the difficulty increases even more so.

Some school systems returned to traditional scheduling after trying block scheduling. Garfield High School in Dale City, Virginia, rejected a modified 4x4 plan after one year. George School, a private boarding high school in Pennsylvania, dropped 90-minute class periods in the late 1940's. Atlantic City School District in New Jersey returned to traditional 40-minute class periods in 1996 instead of the 80-minute block scheduling period begun by Superintendent R. Mark Harris. In 1973, Houston Independent School District adopted an 80-minute 4x4 block and reversed their decision in 1977 to return to the traditional 55-minute six period day. Allegheny High School in Cumberland, Maryland, returned to a seven period day after trying a 4x4 block schedule from 1993-1995. Masconomet High School in Massachusetts dropped block scheduling after two years (Wissahickon, 1996, July 2).

Pay raises for many upper level administrators are based on merit and the perception that the school district is improving. This may lead to changes in educational programs within a school district to give the community the illusion of improvement

(Wissahickon, 1996, July 2). Toch (1992, April 27) reported that with a $228 billion annual investment for public education, administrators are under tremendous pressure to increase “scholastic dividends.” Campus and central level administrators have ‘doctored’ students standardized test scores, encouraged teachers to ‘cheat’ on standardized tests, and allowed a teacher to post “correctly filled-out answer sheets on the walls of her classroom.” This was permitted in order to inflate standardized test scores, the “most quantifiable measure of achievement” (Toch, 1992, April 27).

Several school districts have defeated block scheduling plans. At Camp Hill School District, Camp Hill, Pennsylvania, the school board voted not to adopt block scheduling by a 6-3 vote (Wissahickon, 1996, July 2). The board at Elizabethtown School District, Elizabethtown, Pennsylvania, voted 8-1 not to implement intensive scheduling due to the insufficient record of accomplishment (Grubbs, March 20, 1996).

BLOCK SCHEDULING MERITS

In Virginia, one in four high school graduates who entered college in the fall of 1993 required remediation in math, English, or reading. The blame for this was placed on the high school for doing a poor job of educating the students. Orange County High School in Virginia restructured their high school by implementing an alternating block schedule. After one semester with the new schedule, teachers reported significant improvement in grades, less inappropriate behavior, and increased teaching effectiveness while students reported better grades, that they were learning more, and it was easier to focus on assignments (Edwards, 1995, May).

The Renaissance Program, the first Copernican pilot program, began in 1989 using the two 100-minute class schedule (Carroll, 1994). These classes met 25% less time than the traditional students did but students in this program earned full credit. Evaluators from Harvard University found that:

1. Renaissance students were better known by their teachers, were responded to with more care, did more writing, enjoyed their classes more, felt more challenged and gained deeper understanding.
2. Renaissance teachers were excited about their teaching…felt rejuvenated and believe they were teaching students more productively than ever.
3. Renaissance students had more opportunities for academic enrichment…and actually completed 13% more course credits.
4. Renaissance and traditional program students had comparable levels of retention.
5. Renaissance students performed significantly better than traditional students on oral exams assessing students' capacities for thinking through problems and working cooperatively.

Donald G. Hackmann, Principal, Center Middle School, Kansas City, Missouri, states that during the first year of implementing block scheduling, discipline referrals dropped more than 60 percent, suspensions declined proportionately, daily attendance increased from 92 to 94 percent and surveyed parents and students approved of the new block schedule (Hackmann, 1995, November).

The teacher-pupil ratio per day at Hope High School in Arkansas decreased from 120-150 students per day to 90 per day in three classes with one preparation period (Wilson, 1995, May). Students who fail a course in the fall can retake the course again the spring semester instead of waiting until the summer or next fall.

After three years of thorough investigation and debate, Skyline High School in Longmont, Colorado, changed from a traditional semester schedule to a trimester schedule in the 1993-1994 school year (Stumpf, 1995, November). Classes are longer (70 minutes), students attend fewer classes (five) and the benefits are many. Student grades improved with a decrease in the number of failing grades. In addition, students are more focused as they have time to complete tasks that require more concentration. Teachers report that they have less hectic days and are less tired in part due to the smaller class size, and they now personalize instruction with active student engagement using labs and small group presentations. During the first year of implementing block schedules at Center Middle School, Kansas City, Missouri, marginal gains were made in the number of students on the honor roll and the number of failing students (Hackmann, 1995, November).

The reliance on the Carnegie unit has made all students "Prisoner's of Time" (National Education Commission on Time and Learning, 1994). During the past ten years, high schools throughout the United States have implemented block scheduling to address curriculum fragmentation. The key component of block scheduling is longer class periods. Wasson High School in Colorado Springs, Colorado, adopted a 4x4 block schedule in 1990 (O'Neil, 1995, November) that led to smaller class sizes and allows teachers to get to know each student better. Daily attendance, percentage of students making the honor roll, number of students pursuing four-year colleges, and number of course credits increased while the failure rate decreased. The limited data that is available about 4x4 scheduling agrees with Orange County High School (Virginia): students are completing more courses, grades are going up, and more students are taking and passing Advanced Placement exams (Edwards, 1995, November).

With longer periods in block-scheduled classes, set-up and clean-up times allows more time for work in a laboratory situation. "The longer class periods seem tailor-made for labs" (Voight, 1996a, February 18). It allows for field trips within one class period.

The North Carolina Department of Public Instruction compared End-of-Course test scores for blocked and non-blocked high schools for English, Algebra, Geometry, U.S. History, Economics, Legal, Political Systems, Biology, Chemistry, Physics, and Physical Science. Generally, students in block-scheduled schools had an End-of-Course exam score at least equal to those students in non-blocked schools (1995). With adjustments given for parental educational level, starting point and homework time, End-of-Course exam scores for the core academic subjects were significantly higher for students in blocked schools. The five optional subjects' results were mixed.

Block scheduling leads to a conducive atmosphere for effective teacher and school-wide changes (Cawelti, 1994). At High Technology High School, Monmouth County, New Jersey, students attend five classes of 70 minutes in length, almost twice as long as traditionally scheduled high schools (Taylor, 1996, July 13). The positive atmosphere at this school has "fostered innovative lesson ideas which have provided the students with dynamic days consisting of varied types of learning strategies…instructors have had the time to allow students to explore the world wide web…or compile information from databases around the world" (p. 2).

Block scheduling is not a new idea, but one that has endured for a long time and is now proving to be capable of improving the ambience of the classroom and the school (Taylor, 1996, July 13). Browerville (Oven, 1998, June 6) has retained block scheduling since 1973. Originally started as an accelerated block school with four classes per day, Browerville changed to a modified block (three 90-minute blocks and one 50-minute block) during the 1979-1980 school year. This change was to better accommodate the music program.

Although student and teacher absences were a concern, it is also a benefit of block scheduling. Liberty High School, Bedford County Public Schools, had a slight increase of 0.7% in student attendance and a significant increase in attendance for teachers of 43% between the 1994 and 1995 school year (Bedford County Public Schools, 1996). Roy J. Wasson High School in Colorado Springs, Colorado, increased average daily attendance from 91.7% before block scheduling to 93.9% after four years of block scheduling (Schoenstein, 1996, July 4).

A comparison of disciplinary referrals between the 1994 and the 1995 school year shows a significant decrease at Liberty High School: 56% decrease in off-campus suspensions, 50% decrease in in-house suspensions, and a 65% decrease of fighting incidents (Bedford County Public Schools, 1996). End-of-year grades remained constant for block-scheduled students at Liberty High School from the 1994 to the 1995 school year. There was also a 60% increase in students earning "A" honor roll status after one year of block scheduling.

Many teachers have observed less stress. However, they also feel that the stress is less because teachers do not cover that material at the same rate. They noticed that students do much of their homework in class. If fewer demands are put on a person, they have less stress (Wissahickson, 1996, July 2).

Block scheduling forces teachers “to be more organized,” there are fewer students to evaluate and teachers have a better sense of their student’s performance (Voight, 1996b, February 18). The longer periods provide more occasions to “take students beyond the classroom” plus it affords better opportunity to work with students who need more help.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

The sample was drawn from the student population of a large urban school district in north central Texas, a district serving approximately 77,000 students. The district has twelve regular high schools serving students in grades nine through twelve. All twelve regular high schools were included in this study.

A form was sent to the twelve high school principals asking for information about the type of scheduling used at their campus from 1991-1992 school year through the 1998-1999 school year. They were asked to indicate when each scheduling type was implemented at their campus. The statements that were asked included “Semester/Year A/B Block began” to “Never used Block or Accelerated Block scheduling.” Principals were also asked if their campus returned to a traditional schedule (see Appendix A).

This study compared traditional scheduling with block and accelerated block scheduling and its effects on student achievement and attendance by comparing the differences in student outcomes observed before and after the adoption of a block or accelerated block schedule. The independent variable was the use of time in a block-scheduling model. The dependent variables were student outcomes measured by nine indicators based on the Academic Excellence Indicator System (AEIS) in Texas. The nine indicators consisted of student attendance, graduation rate, dropout rate, percentage of students taking advanced courses, percentage of students passing all Exit-level Texas Assessment of Academic Skills tests (TAAS), percentage of students taking College Admissions Tests (SAT and ACT), mean SAT total score of those students who took the SAT, mean ACT total score of those students who took the ACT, and percentage of students who are at or above the criterion on the SAT or ACT of those students taking the SAT or ACT. Data from archival files from the Texas Education Agency's Academic Excellence Indicator System (AEIS) for each respective year of the eight-year longitudinal study was collected, as shown in Tables B1-B8 (see Appendix B).

The origins of the AEIS go back to 1984 when the Texas Legislature wanted to emphasize student achievement as the basis for accountability. That year, Texas House Bill 72 called for a system of accountability based primarily on student performance. Before that, accountability focused mostly on process; that is, districts were checked to see if the schools in a district had been following rules, regulations, and sound educational practices (AEIS, 2000, October).

Since the first year of the AEIS (1990-1991), it has developed and evolved through legislative amendments, the recommendations of advisory committees, the commissioner of education, State Board of Education actions, and final development by Texas Education Agency (TEA) researchers and analysts. The AEIS compiles a wide range of information on the performance of students in each school and district in Texas every year. This information is included in the annual AEIS reports, which are available each year in November. The first AEIS report was printed for the 1990-1991 school year (AEIS, 2000, October).

Through the Public Education Information Management System (PEIMS), TEA annually collects a broad range of information on all students in all districts in the state of Texas. Testing contractors, including TAAS, SAT, and ACT, provide the agency with scores on standardized tests that are administered statewide.

PEIMS is a statewide data management system for public education information in the state of Texas. One of the basic goals of PEIMS, as adopted by the State Board of Education in 1986, is to improve education practices of local school districts. Currently, the major categories of data collected are organization, budget, actual financial, staff, student demographic and program participation, student attendance and course completion, dropout, retention, and graduate information. This study focused on student attendance, graduation rate, dropout rate, percentage of students taking advanced courses, percentage of students passing all Exit-level TAAS tests, percentage of students taking SAT and ACT tests, mean SAT total score, mean ACT total score, and percentage of students who are at or above the criterion on the SAT or ACT.

Advanced Courses is a count of the number of students who complete and receive credit for at least one advanced academic course in grades 9-12. Course completion information is reported by the district through PEIMS at the end of each school year. The values are calculated by dividing the number of students who completed at least one advanced academic course by the number of students who completed at least one course. This value is expressed as a percent (AEIS, 2000, October).

Attendance Rate is based on student attendance for the entire school year. Attendance is calculated as follows: total number of days students were present during the school year divided by the total number of days students were in membership that school year (AEIS, 2000, October).

College Admissions Tests include the College Board's SAT I and ACT, Inc.'s ACT Assessment. Both testing companies provide the agency (TEA) with testing information annually on test participation and performance of the most recent graduating seniors at all Texas public schools. Only one record is sent per student. If a student takes an ACT or SAT I test more than once, the agency receives the record for the most recent SAT and ACT taken. Three values are calculated for this indicator: (1) The percent of examinees who scored at or above the criterion score on either test (1110 on the SAT I, or 24 on the ACT) which is calculated by taking the number of examinees who scored at or above the criterion divided by number of examinees; (2) The percent of graduates who took either College Admissions Test, calculated by the number of graduates who took either the SAT I or the ACT divided by the number of graduates; and (3) The average score for each (SAT I total and ACT composite), calculated by taking the total score for all students who took the SAT I divided by the number of students who took the SAT I and the total score for all students who took the ACT divided by number of students who took the ACT (AEIS, 2000, October).

Dropout Rate (Annual) is the count of dropouts summed across all grades, 9-12, divided by the number of students summed across all grades 9-12. It is calculated by taking the number of students who dropped out during the school year divided by number of students who were in membership at any time during the school year. A cumulative count of students is used in the denominator and numerator to neutralize the effects of mobility by including in the denominator every student who enrolled at the school throughout the school year (AEIS, 2000, October).

Graduates is the total number of graduates (including summer graduates) for the school year. The value includes 12th graders who graduated as well as graduates from other grades (AEIS, 2000, October).

Texas Assessment of Academic Skills (TAAS): Students in Texas public schools in grades three through eight and ten take this criterion-referenced test during the spring semester of each school year. This study only includes the Exit-level test that measures student achievement in reading, mathematics, and writing. Students are required to pass the Exit-level test in order to qualify for graduation from high school. The results for students who move from school to school within the same district are used for accountability purposes. The test results go to the last school where the student was tested (AEIS, 2000, October).

The indicators were analyzed using SPSS multivariate and univariate analyses to compare the means, regression line slopes, and regression line intercepts for each type of schedule: traditional only, traditional prior to A/B block change, traditional prior to accelerated block change, A/B block, and accelerated block. The regression line, slopes, and intercepts were based on separate regression analyses where school year was used to predict the AEIS indicators for each type of schedule. The first analysis was to determine whether there were any differences on the AEIS indicators between traditional schedule only schools versus traditional schedules of the A/B block and accelerated block schools (i.e., to determine whether there were differences in these baseline conditions). The second analysis was to determine whether there were differences on the AEIS indicators between traditional only schedules versus A/B block and accelerated block schedules of the schools that implemented schedule changes. The third analysis was to determine whether there were any differences on the AEIS indicators between A/B block versus accelerated block schedules of the schools that implemented changes. The study included data from all high schools two years prior to the first high school that adopted block/accelerated block scheduling and continued for eight years.

High School G only had one A/B block scheduling year and one accelerated scheduling year. Therefore, this high school was deleted due to insufficient data for analysis. Two other schools, D and J, reverted to traditional scheduling during the 1998-1999 school year. The data for the 1998-1999 traditional scheduling year for these two schools were deleted due to insufficient data, as there was only one traditional scheduling year after returning from accelerated block. In addition, School C had fewer than five students in the classification percentage of students taking the SAT/ACT College Admissions Tests for school year 1995-1996, no students in the classification mean ACT score for school years 1995-1996 and 1996-1997, and School L had no students in the classification percentage of students taking advanced courses for school year 1991-1992. The data for the 1995-1996 percentage of students taking the SAT/ACT College Admissions Tests for School C, the data for the 1995-1996 and 1996-1997 mean ACT score for School C, and the data for the 1991-1992 school year for percentage of students taking advanced courses for School C were not analyzed due to insufficient data, as data was not available.

CHAPTER 4

ANALYSIS OF DATA AND FINDINGS

The study included data from all twelve high schools two years prior to the first high school that adopted A/B block/accelerated block scheduling and continued for eight-years. The indicators were analyzed using SPSS multivariate and univariate analyses. The analyses involved comparisons of means, regression line slopes, and regression line intercepts for each type of schedule: traditional only, traditional prior to A/B block change, traditional prior to accelerated block change, A/B block, and accelerated block. Because there is more than one degree of freedom per effect, Pillai's was chosen for the multivariate analysis as Pillai's criterion is said to be more robust than other multivariate criteria (Tabachnick, 1996). For the analyses of means, the data for each AEIS indicator were averaged across school years for the particular schedule condition for each school. The data points for all eight years were averaged for schools that remained on traditional schedules throughout the study and the data points were averaged across the traditionally scheduled school years and the years under the changed schedule for schools that changed to accelerated block and A/B block schedules. The regression line slopes and intercepts were based on separate regression analyses where years of the study were used to predict the AEIS indicators for each type of schedule. For example, for schools that remained on traditional schedules through out the study, the eight years of study were used to predict student attendance, graduation rate, dropout rate, et cetera.

The first set of analyses of means, slopes, and intercepts were single factor between groups analyses to determine whether there were any differences on the AEIS indicators between the traditional only schedule schools and the traditional schedules of the A/B block and accelerated block schools (i.e., to determine whether there were differences in these baseline conditions). The second set of analyses were single factor between groups analyses to determine whether there were differences between the traditional only schedules and the A/B block and accelerated block schedules of the schools that implemented schedule changes. The third set of analyses were mixed model analyses to determine whether there were any differences between the traditional schedules and changed schedules of the schools that changed to A/B block and accelerated block schedules. For all analyses, three schools were in the traditionally scheduled only group, five schools were in the accelerated block group, and three schools were in the A/B block group.

Analysis of Traditional Schedule School Years

Analysis of Means

Comparisons of differences on AEIS indicators were made between the traditional schedule schools with no change (traditional only schedule schools for the entire eight years), the traditionally scheduled school years of the schools that changed to A/B block schedules, and the traditionally scheduled school years of the schools that changed to accelerated block schedules.

The multivariate effect, Pillai's Trace, was not significant. However, the univariate analyses revealed a significant difference in the percentage of students taking advanced courses, $F(2,8) = 7.046$, $p = 0.017$. Post hoc comparisons using Fisher's least significant difference tests (LSD) revealed a marginal significant difference in the percentage of students in the traditionally scheduled schools who took advanced courses ($M_{\text{Traditional Mean}} = 12.2750\%$) compared to the percentage of students in the traditionally scheduled to A/B block scheduled schools ($M_{\text{A/B Mean}} = 6.0444\%$), $p = 0.072$.

Table 1

Post Hoc LSD, Percentage of Students Taking Advanced Courses, Traditional Only, Means

Dependent Variable	(I) Type of Change	Mean	N	(J) Type of Change	Mean Difference (I-J)	Std. Error	p
% Adv Courses	No Change	12.2750	3	Traditional to Accelerated	-3.8717	2.6911	0.188
				Traditional to A/B	6.2306	3.0088	0.072
	Traditional to Accelerated	16.1467	5	No Change	3.8717	2.6911	0.188
				Traditional to A/B	10.1022	2.6911	0.006
	Traditional to A/B	6.0440	3	No Change	-6.2306	3.0088	0.072
				Traditional to Accelerated	-10.1022	2.6911	0.006

The percentages did not significantly differ between the traditionally scheduled schools and the traditionally scheduled school years of the schools that changed to accelerated block schedules ($M_{\text{Accelerated Mean}} = 16.1467\%$), $p = 0.188$. The percentage of students taking advanced courses was significantly different for the traditionally scheduled school years of the schools that switched to accelerated block schedules than for schools that switched to A/B block schedules, $p = 0.006$ (See Table 1). Thus, because differences in the percentages existed before any schedule changes, differences of the same magnitude and direction following schedule changes cannot be attributed to the schedule changes.

Analysis of Slopes

Comparison of regression line slopes on AEIS indicators were made between traditionally scheduled schools with no change (traditional only schedule schools for the entire eight years), the traditionally scheduled school years of the schools that changed to A/B block schedules, and the traditionally scheduled school years of the schools that changed to accelerated block schedules. The multivariate effect was not significant according to Pillai's Trace. The univariate analyses revealed significant differences in dropout rate slopes, $F(2,8) = 6.990$, $p = 0.018$, and mean ACT score slopes, $F(2,8) = 4.540$, $p = 0.048$.

Fisher's LSD tests revealed that the mean dropout rate slope for traditionally scheduled school years of schools that changed to A/B block schedules ($M_{\text{A/B Slope}} = -3.6000$) was significantly different from the mean slope for the traditionally scheduled schools ($M_{\text{Traditional Slope}} = -0.3387$), $p = 0.006$ (See Table 2). The mean slope for traditionally scheduled school years of schools that changed to A/B block schedules was also significantly different from the mean slope for traditionally scheduled school years of schools that changed to accelerated block schedules ($M_{\text{Accelerated Slope}} = -1.5180$), $p = 0.030$.

Table 2

Post Hoc LSD, Dropout Rate, Traditional Only, Slopes

Dependent Variable	(I) Type of Change	Mean	N	(J) Type of Change	Mean Difference (I-J)	Std. Error	p
Dropout Rate	No Change	-0.3387	3	Traditional to Accelerated	1.1793	0.7936	0.176
				Traditional to A/B	3.2613	0.8873	0.006
	Traditional to Accelerated	-1.5180	5	No Change	-1.1793	0.7936	0.176
				Traditional to A/B	2.0820	0.7936	0.030
	Traditional to A/B	-3.6000	3	No Change	-3.2613	0.8873	0.006
				Traditional to Accelerated	-2.0820	0.7936	0.030

There was no significant difference between the mean slope for traditionally scheduled school years of schools that changed to accelerated block schedules and the schools that remained on traditional schedules throughout the study, $p = 0.176$. Thus, dropout rates decreased more rapidly during the traditionally scheduled school years for schools that changed to A/B block schedules than for schools that remained on traditional schedules and for traditionally scheduled school years of schools that changed to accelerated block schedules.

Fisher's LSD tests revealed that the mean ACT score slopes for traditionally scheduled school years of schools that changed to A/B block schedules ($M_{\text{A/B Slope}} = -1.233$) was significantly different from the slopes for the traditionally scheduled schools ($M_{\text{Traditional Slope}} = -0.0446$), $p = 0.043$ (See Table 3). The mean slope for traditionally scheduled school years of schools that changed to A/B block schedules was also significantly different from the mean slope for traditionally scheduled school years of schools that changed to accelerated block schedules ($M_{\text{Accelerated Slope}} = 0.0320$), $p = 0.021$.

Table 3

Post Hoc LSD, Mean ACT Score, Traditional Only, Slopes

Dependent Variable	(I) Type of Change	Mean	N	(J) Type of Change	Mean Difference (I-J)	Std. Error	p
Mean ACT	No Change	-0.0446	3	Traditional to Accelerated	-0.0766	0.4434	0.867
				Traditional to A/B	1.1887	0.4958	0.043
	Traditional to Accelerated	0.0320	5	No Change	0.0766	0.4434	0.867
				Traditional to A/B	1.2653	0.4434	0.021
	Traditional to A/B	-1.2333	3	No Change	-1.1887	0.4958	0.043
				Traditional to Accelerated	-1.2653	0.4434	0.021

There was no significant difference between the slopes for traditionally scheduled school years of schools that changed to accelerated block schedules and for the schools that remained on the traditional schedules throughout the study, p = 0.867. Thus, mean ACT scores decreased more rapidly during the traditionally scheduled school years for schools that changed to A/B block schedules than for the traditionally scheduled school years of the schools that changed to accelerated block schedules and for schools that remained on traditional schedules. Because differences in the dropout rate slopes and mean ACT slopes existed prior to any schedule changes, differences of the same magnitude and direction following schedule changes cannot be attributed to the schedule changes.

Analysis of Intercepts

A comparison of intercepts was completed comparing the AEIS indicators intercepts for the traditionally scheduled schools with no change, traditionally scheduled school years of schools that changed to accelerated block schedules, and traditionally scheduled school years of schools that changed to A/B block schedules. The multivariate effect was not significant according to Pillai's Trace. The univariate analyses revealed a significant difference in the percentage of students taking advanced courses $\underline{F}(2,8) = 6.548$, $\underline{p} = 0.021$.

Post Hoc comparisons using Fisher's LSD tests revealed that the mean intercept for the percentage of students taking advanced courses for traditionally scheduled school years of schools that changed to A/B block schedules ($\underline{M}_{\text{A/B Intercept}} = -3.2333$) was significantly different from the intercept for the traditionally scheduled schools ($\underline{M}_{\text{Traditional Intercept}} = 8.9463$), $\underline{p} = 0.012$ (See Table 4). The intercept for traditionally scheduled school years of schools that changed to A/B block schedules was also significantly different from the intercept for traditionally scheduled school years of schools that changed to accelerated block schedules ($\underline{M}_{\text{Accelerated Intercept}} = 7.2686$), $\underline{p} = 0.014$.

Table 4

Post Hoc LSD, Mean Percentage of Students Taking Advanced Courses, Traditional Only, Intercepts

Dependent Variable	(I) Type of Change	Mean	N	(J) Type of Change	Mean Difference (I-J)	Std. Error	p
% Adv Courses	No Change	8.9463	3	Traditional to Accelerated	1.6777	3.3503	0.630
				Traditional to A/B	12.1797	3.7458	0.012
	Traditional to Accelerated	7.2686	5	No Change	-1.6777	3.3503	0.630
				Traditional to A/B	10.5019	3.3503	0.014
	Traditional to A/B	-3.2333	3	No Change	-12.1797	3.7458	0.012
				Traditional to Accelerated	-10.5019	3.3503	0.014

There was no significant difference between the intercepts for traditionally scheduled school years of schools that changed to accelerated block schedules and the schools that remained on the traditional schedules throughout the study, $p = 0.630$. Because differences in the percentage of students taking advanced courses intercept existed before any schedule changes, differences of the same magnitude and direction following schedule changes cannot be attributed to the schedule changes.

Analysis of Traditional Schedule Schools versus A/B Block Schedule Schools versus Accelerated Block Schedule Schools

Analysis of Means

Comparisons of differences on AEIS indicators were made between traditionally scheduled schools with no change (traditional only schedule schools for the entire eight years), the accelerated block scheduled school years for schools that changed to accelerated block schedules, and the A/B block scheduled school years for schools that changed to A/B block schedules. The multivariate analysis Pillai's Trace revealed no significant effect. However, the univariate analyses revealed a significant difference in the dropout rate, $F(2,8) = 4.675$, $p = 0.045$.

Post Hoc Tests comparisons using Fisher's LSD revealed that a greater percentage of students in the traditionally scheduled schools dropped out ($M_{\text{Traditional Mean}} = 3.2958\%$) than the percentage of students in the traditionally scheduled to A/B block scheduled schools ($M_{\text{A/ B Mean}} = 1.7789\%$), $p = 0.017$ (See Table 5). The comparison between no change schools versus traditionally scheduled schools that changed to accelerated block schedules indicated a marginal significant difference ($\underline{M}_{\text{Accelerated Mean}}$ = 2.3217), $\underline{p}$ = 0.063.

Table 5

Post Hoc LSD, Dropout, Traditional Only versus Accelerated versus A/B, Means

Dependent Variable	(I) Type of Change	Mean	N	(J) Type of Change	Mean Difference (I-J)	Std. Error	p
Dropout Rate	No Change	3.2958	3	Traditional to Accelerated	0.9742	0.4518	0.063
				Traditional to A/B	1.5169	0.5051	0.017
	Traditional to Accelerated	2.3217	5	No Change	-0.9742	0.4518	0.063
				Traditional to A/B	0.5428	0.4518	0.264
	Traditional to A/B	1.7789	3	No Change	-1.5169	0.5051	0.017
				Traditional to Accelerated	-0.5428	0.4518	0.264

The comparison between traditionally scheduled schools that changed to accelerated block versus traditionally scheduled schools that changed to A/B block was not significant, $\underline{p}$ = 0.264.

Analysis of Slopes

Comparison of regression line slopes on AEIS indicators were made between traditionally scheduled schools with no change (traditional only schedule schools for the entire eight years), the accelerated block scheduled school years for schools that changed to accelerated block schedules, and the A/B block scheduled school years for schools that changed to A/B block schedules. The multivariate effect was not significant according to Pillai's Trace. The univariate analysis revealed significant differences in percentage of student attendance, $\underline{F}(2,8)$ = 19.303, $\underline{p}$ = 0.001 and students passing all Exit-level TAAS tests, $\underline{F}(2,8)$ = 4.765, $\underline{p}$ = 0.043.

Fisher’s LSD Post Hoc tests revealed that the mean slope for the percentage of student attendance in traditionally scheduled schools that changed to accelerated block schedules ($\underline{M}_{\text{Accelerated Slope}}$ = -0.8260) was significantly different from the mean slope for the traditionally scheduled schools ($\underline{M}_{\text{Traditional Slope}}$ = 0.1689), $\underline{p}$ = 0.004 (See Table 6).

Table 6

Post Hoc LSD, Percentage of Student Attendance, Traditional Only versus Accelerated versus A/B, Slopes

Dependent Variable	(I) Type of Change	Mean	N	(J) Type of Change	Mean Difference (I-J)	Std. Error	p
% Student Attendance	No Change	0.1690	3	Traditional to Accelerated	0.9950	0.2470	0.004
				Traditional to A/B	-0.4617	0.2762	0.133
	Traditional to Accelerated	-0.8260	5	No Change	-0.9950	0.2470	0.004
				Traditional to A/B	-1.4567	0.2470	<0.001
	Traditional to A/B	0.6307	3	No Change	0.4617	0.2762	0.133
				Traditional to Accelerated	1.4567	0.2470	<0.001

There was also a significant difference between the slopes for traditionally scheduled schools that changed to accelerated block schedules and traditionally scheduled schools that changed to A/B block schedules ($\underline{M}_{\text{A/B Slope}}$ = 0.6307), $\underline{p}$ < 0.001. There was not a significant difference between the slopes for traditionally scheduled schools and schools that changed to A/B block schedules, $\underline{p}$ = 0.133.

Fisher’s LSD Post Hoc test revealed that the mean slope for Exit-level TAAS tests for schools that changed to accelerated block schedules ($\underline{M}_{\text{Accelerated Slope}}$ = 2.3880) was significantly different from the mean slope for the schools that changed to A/B block schedules ($\underline{M}_{A/B\ Slope} = 6.7847$), $\underline{p} = 0.015$ (See Table 7).

Table 7

Post Hoc LSD, Percentage of Student Passing All Exit-Level TAAS Tests, Traditional Only versus Accelerated versus A/B, Slopes

Dependent Variable	(I) Type of Change	Mean	N	(J) Type of Change	Mean Difference (I-J)	Std. Error	p
% Pass All Exit TAAS	No Change	3.8457	3	Traditional to Accelerated	1.4577	1.4259	0.337
				Traditional to A/B	-2.9390	1.5942	0.102
	Traditional to Accelerated	2.3880	5	No Change	-1.4577	1.4259	0.337
				Traditional to A/B	-4.3967	1.4259	0.015
	Traditional to A/B	6.7847	3	No Change	2.9390	1.5942	0.102
				Traditional to Accelerated	4.3967	1.4259	0.015

The slope for traditionally scheduled schools ($\underline{M}_{Traditional\ Slope} = 3.846$) did not significantly differ from the slopes for schools that changed to accelerated block schedules, $\underline{p} = 0.102$ or schools that changed to A/B block schedules, $\underline{p} = 0.337$. Thus, for schools under all three schedules, the percentages of students passing the Exit-level TAAS tests tended to increase across the study, and the increase was significantly greater for schools that changed to A/B block schedules than for schools that changed to accelerated block schedules.

Analysis of Intercepts

Comparisons of intercepts on AEIS indicators were made between traditionally scheduled schools with no change (traditional only schedule for the entire eight years), the accelerated block scheduled school years for schools that changed to accelerated block schedules, and the A/B block scheduled school years for schools that changed to A/B block schedules. The multivariate effect was not significant according to Pillai's Trace. The univariate analyses revealed a significant difference in percentage of student attendance, $\underline{F}(2,8) = 9.968$, $\underline{p} = 0.007$.

Table 8

Post Hoc LSD, Percentage of Student Attendance, Traditional Only versus Accelerated versus A/B, Intercepts

Dependent Variable	(I) Type of Change	Mean	N	(J) Type of Change	Mean Difference (I-J)	Std. Error	p
% Student Attendance	No Change	91.1893	3	Traditional to Accelerated	-4.9181	1.9103	0.033
				Traditional to A/B	3.3863	2.1358	0.152
	Traditional to Accelerated	96.1074	5	No Change	4.9181	1.9103	0.033
				Traditional to A/B	8.3044	1.9103	0.002
	Traditional to A/B	87.8030	3	No Change	-3.3863	2.1358	0.152
				Traditional to Accelerated	-8.3044	1.9103	0.002

Fisher's LSD Post Hoc test revealed that the mean student attendance intercept for schools that were traditionally scheduled ($\underline{M}_{\text{Traditional Intercept}} = 91.1893\%$) was significantly different from the mean intercept for schools that changed to accelerated block schedules ($\underline{M}_{\text{Accelerated Intercept}} = 96.1074\%$), $\underline{p}=0.033$ (See Table 8). The intercept for schools that changed to accelerated block schedules was also significantly different from the intercept for schools that changed to A/B block schedules ($\underline{M}_{\text{A/B Intercept}} = 87.8030\%$), $\underline{p} = 0.002$.

The difference between the intercept for traditionally scheduled schools and schools that changed to A/B block schedules was not significant, $p = 0.152$.

Analysis of Accelerated Block Schedule Schools versus A/B Block Schedule Schools

Analysis of Means

The data for schools that changed from traditional schedules to accelerated block schedules and the data for schools that changed from traditional schedules to A/B block schedules were analyzed using a repeated measures MANOVA to determine whether there were any differences on the AEIS indicators between the traditionally scheduled years and the years under the new schedules and whether the type of schedule change (accelerated or A/B block) affected any of these differences. Based on Pillai’s trace, none of the multivariate effects were significant. However, univariate tests revealed main effects for traditional versus new schedules and type of change and a traditional versus new schedule by type of change interaction.

Univariate tests revealed that the dropout rate mean was significantly different following a schedule change ($M_{\text{Traditional Mean}} = 3.95\%$ versus $M_{\text{Change Mean}} = 2.12\%$), $F(1,6) = 6.533$, $p = 0.043$, the mean percentage of students passing the Exit-level TAAS tests was significantly different following a schedule change ($M_{\text{Traditional Mean}} = 40.11\%$ versus $M_{\text{Change Mean}} = 54.15\%$), $F(1,6) = 73.945$, $p < 0.001$, and the average SAT score mean was significantly different following a schedule change ($M_{\text{Traditional Mean}} = 808.83$ versus $M_{\text{Change Mean}} = 900.31$), $F(1,6) = 53.380$, $p < 0.001$ (See Table 9).

Table 9

Main Effects for Traditional versus Change Schedules, Means

Source	Measure	df	Traditional Mean	New Schedule Mean	F	p
Schedule	Dropout Rate	1	3.95	2.12	6.533	0.043
Schedule	% Pass All Exit TAAS	1	40.11	54.15	73.495	<0.001
Schedule	Mean SAT	1	808.83	900.31	53.380	<0.001

When averaging across traditionally scheduled years and years under the new schedule, the mean percentage of students taking advanced courses for schools that changed to accelerated block schedules ($\underline{M}_{\text{Accelerated Mean}}$ = 15.85%) was significantly different from the mean for schools that changed to A/B block schedules ($\underline{M}_{\text{A/B Mean}}$ = 9.13%), $\underline{F}(1,6) = 8.877$, $\underline{p} = 0.025$ (See Table 10). This main effect was, however, qualified by a marginally significant traditional versus new schedule by type of change interaction, $\underline{F}(1,6) = 4.748$, $\underline{p} = 0.072$.

Table 10

Main Effect Averaging Across Time Scheduled Years and Years Under New Schedule, Means

Source	Measure	df	Averaged A/B Mean	Averaged Accelerated Mean	F	p
Time	% Adv Courses	1	9.13	15.85	8.877	0.025

Table 11

Paired Samples Test for A/B and Accelerated Block Scheduling, Means

High School Scheduling Type	Dependent Variable	Traditional Mean	Change Mean	Mean Difference	Std. Deviation	t	df	p
A/B	% Adv Courses	6.04	12.21	-6.17	0.57	-18.672	2	0.003
Accelerated		16.15	15.54	0.61	5.20	0.262	4	0.807

Post hoc t tests revealed that the mean percentage of students taking advanced courses was significantly different following the change for schools that switched to A/B block schedules ($M_{\text{Traditional Mean}}$ = 6.04% versus $M_{\text{A/B Mean}}$ = 12.21%, $t(2) = -18.672$, $p = 0.003$), but was not significantly different following the change for schools that switched to accelerated block schedules ($M_{\text{Traditional Mean}}$ = 16.15% versus $M_{\text{Accelerated Mean}}$= 15.54%, $t(4) = 0.262$, $p = 0.807$), as shown in Table 11.

Analysis of Slopes

A comparison of slopes was completed comparing the AEIS indicators slopes for traditionally scheduled schools that changed to A/B block schedules and traditionally scheduled schools that changed to accelerated block schedules using a repeated measures MANOVA. The multivariate effect was not significant according to Pillai’s Trace. The univariate analyses revealed main effects for traditional versus new schedules and type of change and traditional versus new schedule by type of change interactions.

Univariate tests revealed that the dropout rate slope was significantly different following a schedule change ($M_{\text{Traditional Slope}} = -2.30$ versus $M_{\text{Change Slope}} = 0.14$), $F(1,6) = 21.467$, $p = 0.004$, the percentage of students taking advanced courses slope was significantly different following a schedule change ($\underline{M}_{\text{Traditional Slope}}$ = 4.24 versus $\underline{M}_{\text{Change Slope}}$ = 0.51), $\underline{F}(1,6) = 6.804$, $\underline{p} = 0.040$, percentage of students passing the Exit-level TAAS tests slope was significantly different following a schedule change ($\underline{M}_{\text{Traditional Slope}}$ = 2.66 versus $\underline{M}_{\text{Change Slope}}$ = 4.04), $F(1,6) = 7.837$, $\underline{p} = 0.031$, and the percentage of students taking the SAT/ACT test was significantly different following a schedule change, ($\underline{M}_{\text{Traditional Slope}}$ = 2.17 versus $\underline{M}_{\text{Change Slope}}$ = -4.17), $F(1,6) = 49.813$, $\underline{p} < 0.001$ (See Table 12).

Table 12

Main Effects for Traditional versus Change Schedules, Slopes

Source	Measure	df	Traditional Mean	New Schedule Mean	F	p
Schedule	Dropout Rate	1	-2.30	0.14	21.467	0.004
Schedule	% Adv Courses	1	4.24	0.51	6.804	0.040
Schedule	% Pass All Exit TAAS	1	2.66	4.04	7.837	0.031
Schedule	% SAT/ACT	1	2.17	-4.17	49.813	<0.001

When averaging across traditionally scheduled years and years under the new schedule, the mean slopes from regressing the percentage of students passing all Exit-level TAAS tests for the years in the study for schools that changed to accelerated block schedules ($\underline{M}_{\text{Accelerated Slope}}$ = 2.55) was significantly different from the mean slope for schools that changed to A/B block schedules ($\underline{M}_{\text{A/B Slope}}$ = 4.70, $\underline{F}(1,6) = 3.944$, $\underline{p} = 0.094$). The mean dropout rate slope for schools that changed to accelerated block schedules ($\underline{M}_{\text{Accelerated Slope}}$ = -0.56) was significantly different from the mean dropout rate slope for schools that changed to A/B block schedules ($\underline{M}_{\text{A/B Slope}}$ = -1.94, F(1,6) = 9.051, $\underline{p}$ = 0.024), as shown in Table 13.

Table 13

Main Effect Averaging Across Time Scheduled Years and Years Under New Schedule, Slopes

Source	Measure	df	Averaged A/B Mean	Averaged Accelerated Mean	F	p
Time	Dropout Rate	1	-1.94	-0.56	9.051	0.024
Time	% Pass All Exit TAAS	1	4.70	2.55	3.944	0.940

Additionally, three significant and two marginally significant interactions were revealed. There was a significant traditional versus new schedule by type of change interaction for the percentage of student attendance, $\underline{F}(1,6) = 9.005$, $\underline{p} = 0.024$. Post hoc $\underline{t}$ tests (See Table 14) revealed that the slope for percentage of student attendance was significantly different following the change for schools that switched to accelerated block schedules ($\underline{M}_{\text{Traditional Slope}}$ = 0.21 versus $\underline{M}_{\text{Accelerated Slope}}$ = -0.83, $\underline{t}(4) = 2.812$, $\underline{p} = 0.048$) but was not significantly different following the change for schools that switched to A/B block schedules ($\underline{M}_{\text{Traditional Slope}}$ = -1.25 versus $\underline{M}_{\text{A/B Slope}}$ = 0.63, $\underline{t}(2) = -1.639$, $\underline{p} = 0.243$). There was a significant traditional versus new schedule by type of change interaction for the percentage of students passing all Exit-level TAAS tests, $\underline{F}(1,6) = 10.532$, $\underline{p} = 0.018$. Post hoc $\underline{t}$ tests also revealed that the slope for percentage of students passing all Exit-level TAAS tests was marginally significantly different following the change for schools that switched to A/B block schedules ($\underline{M}_{\text{Traditional Slope}} = 2.61$ versus $\underline{M}_{\text{A/B Slope}} = 6.78$, $\underline{t}(2) = -3.828$, $\underline{p} = 0.062$), but was not significantly different following the change for schools that switched to accelerated block schedules ($\underline{M}_{\text{Traditional Slope}} = 2.70$ versus $\underline{M}_{\text{Accelerated Slope}} = 2.39$, $\underline{t}(2) = 0.364$, $\underline{p} = 0.734$). There was a significant traditional versus new schedule by type of change interaction for the average ACT score, $\underline{F}(1,6) = 7.094$, $\underline{p} = 0.037$. Post hoc $\underline{t}$ tests revealed that the slope for the average ACT score was marginally significantly different following the change for schools that switched to A/B block schedules ($\underline{M}_{\text{Traditional Slope}} = -1.23$ versus $\underline{M}_{\text{A/B Slope}} = 0.13$, $\underline{t}(2) = -3.140$, $\underline{p} = 0.088$) but was not significantly different following the change for schools that switched to accelerated block schedules ($\underline{M}_{\text{Traditional Slope}} = 0.032$ versus $\underline{M}_{\text{Accelerated Slope}} = -0.43$, $\underline{t}(4) = 1.010$, $\underline{p} = 0.370$). There was a marginally significant traditional versus new schedule by type of change interaction for percentage of students taking the SAT/ACT, $\underline{F}(1,6) = 5.878$, $\underline{p} = 0.052$. Post hoc $\underline{t}$ tests also revealed that the slope for percentage of students taking the SAT/ACT was significantly different following the change for schools that switched to A/B block schedules ($\underline{M}_{\text{Traditional Slope}} = 3.22$ versus $\underline{M}_{\text{A/B Slope}} = -6.09$, $\underline{t}(2) = 10.565$, $\underline{p} = 0.009$) and following the change for schools that switched to accelerated block schedules ($\underline{M}_{\text{Traditional Slope}} = 1.53$ versus $\underline{M}_{\text{Accelerated Slope}} = -3.02$, $\underline{t}(4) = 3.269$, $\underline{p} = 0.031$); the change in slope was greater following the A/B block change than following the accelerated block change. There was a marginally significant traditional versus new schedule by type of change interaction for the percentage of students at or above the criterion for SAT/ACT tests, $F(1,6) = 4.017$, $p = 0.092$. Post hoc t tests revealed, however, that the slope for percentage of students at or above the criterion for SAT/ACT tests was not significantly different following the change for schools that switched to A/B block schedules ($M_{\text{Traditional Slope}} = -0.58$ versus $M_{\text{A/B Slope}} = 0.44$, $t(2) = -2.419$, $p = 0.137$) and following the change for schools that switched to accelerated block schedules ($M_{\text{Traditional Slope}} = 2.05$ versus $M_{\text{Accelerated Slope}} = -0.64$, $t(4) = 1.965$, $p = 0.121$). Independent groups t tests revealed that the slope for the traditionally scheduled school years of schools that switched to accelerated block schedules was marginally significantly different from the slope for the traditionally scheduled school years of schools that switched to A/B block schedules, $t(6) = 2.438$, $p = 0.062$; whereas, the slopes for the years following the change were not significantly different, $t(6) = -1.137$, $p = 0.315$.

Table 14

Paired Samples Tests for A/B and Accelerated Block Scheduling, Slopes

High School Scheduling Type	Dependent Variable	Traditional Mean	Change Mean	Mean Difference	Std. Deviation	t	df	p
A/B	% Student Attendance	-1.25	0.63	-1.89	1.99	-1.639	2	0.243
Accelerated		0.02	-0.83	1.03	0.82	2.812	4	0.048
A/B	% Pass All Exit TAAS	2.61	6.78	-4.18	1.89	-3.828	2	0.062
Accelerated		2.70	2.39	0.31	1.89	0.364	4	0.734
A/B	% Taking SAT/ACT	3.22	-6.09	9.31	1.53	10.565	2	0.009
Accelerated		1.53	-3.02	4.55	3.11	3.269	4	0.031
A/B	Mean ACT	-1.23	0.13	-1.36	0.75	-3.140	2	0.088
Accelerated		0.03	-0.43	0.46	1.01	1.010	4	0.370
A/B	%At/Above Criterion	-0.58	0.44	-1.02	0.73	-2.419	2	0.137
Accelerated		2.05	-0.64	2.69	3.06	1.965	4	0.121

Analysis of Intercepts

A comparison of intercepts was completed comparing the AEIS indicators for traditionally scheduled schools that changed to A/B block schedules and traditionally scheduled schools that changed to accelerated block schedules using repeated measures MANOVA. The multivariate effect was not significant according to Pillai's Trace. The univariate analyses revealed main effects for traditional versus new schedules and type of change and traditional versus new schedule by type of change interaction.

Univariate tests revealed that the dropout rate intercept was significantly different following a schedule change ($\underline{M}_{\text{Traditional Intercept}}$ = 8.72 versus $\underline{M}_{\text{Change Intercept}}$ = 1.16), $\underline{F}$(1,6) = 11.869, $\underline{p}$ = 0.014, the percentage of students taking advanced courses intercept was marginally significantly different following a schedule change ($\underline{M}_{\text{Traditional Intercept}}$ = 3.33 versus $\underline{M}_{\text{Change Intercept}}$ = 11.31), $\underline{F}$(1,6) = 4.285, $\underline{p}$ = 0.084, the percentage of students passing the Exit-level TAAS tests intercept was marginally significantly different following a schedule change ($\underline{M}_{\text{Traditional Intercept}}$ = 33.86 versus $\underline{M}_{\text{Change Intercept}}$ = 30.13), $\underline{F}$(1,6) = 4.622, $\underline{p}$ = 0.075, the percentage of students taking the SAT/ACT test intercept was significantly different following a schedule change ($\underline{M}_{\text{Traditional Intercept}}$ = 59.08 versus $\underline{M}_{\text{Change Intercept}}$ =83.79), $\underline{F}$(1,6)=14.946, $\underline{p}$=0.008, and the average SAT score intercept was marginally significantly different following a schedule change ($\underline{M}_{\text{Traditional Intercept}}$ = 784.99 versus $\underline{M}_{\text{Change Intercept}}$ = 934.36), F(1,6) = 5.643, $\underline{p}$ = 0.055 (See Table 15).

Table 15

Main Effects for Traditional versus Change Schedules, Accelerated Block versus A/B Block with Type of Change Interaction, Intercepts

Source	Measure	df	Traditional Mean	New Schedule Mean	F	p
Schedule	Dropout Rate	1	8.72	1.16	11.869	0.014
Schedule	% Adv Courses	1	3.33	11.31	4.285	0.084
Schedule	% Pass All Exit TAAS	1	33.86	30.13	4.622	0.075
Schedule	% SAT/ACT	1	59.08	83.79	14.946	0.008
Schedule	Mean SAT	1	784.99	934.36	5.643	0.055

When averaging across traditionally scheduled years and years under the new schedule, the percentage of student attendance intercept for schools that changed to accelerated block schedules ($\underline{M}_{\text{Accelerated Intercept}} = 90.26$) was marginally significantly different from the intercept for schools that changed to A/B block schedules ($\underline{M}_{\text{A/B Intercept}} = 93.30$, $\underline{F}(1,6) = 3.995$, $\underline{p} = 0.093$), and the percentage of students taking advanced courses intercept was significantly different for schools that changed to accelerated block schedules ($\underline{M}_{\text{Accelerated Intercept}} = 1.70$) than schools that changed to A/B block schedules ($\underline{M}_{\text{A/B Intercept}} = 10.70$, $\underline{F}(1,6) = 31.203$, $\underline{p} = 0.001$) as shown in Table 16.

Table 16

Main Effect Averaging Across Time Scheduled Years and Years Under New Schedule, Intercepts

Source	Measure	df	Averaged A/B Mean	Averaged Accelerated Mean	F	p
Time	% Student Attendance	1	93.30	90.26	3.995	0.093
Time	% Adv Courses	1	10.70	1.70	31.203	0.001

Additionally, two significant interactions and one marginally significant interaction were revealed (See Table 17). There was a significant traditional versus new schedule by type of change interaction for the percentage of student attendance intercepts, $F(1,6) = 10.689$, $p = 0.017$. Post hoc t tests revealed that the percentage of student attendance intercept was significantly different following the change for schools that switched to accelerated block schedules ($M_{\text{Traditional Intercept}} = 90.50$ versus $M_{\text{Accelerated Intercept}} = 96.11$, $t(4) = -3.517$, $p = 0.025$) but was not significantly different following the change for schools that switched to A/B block schedules ($M_{\text{Traditional Intercept}} = 92.72$ versus $M_{\text{A/B Intercept}} = 87.80$, $t(2) = 1.486$, $p = 0.276$). There was a significant traditional versus new schedule by type of change interaction for the percentage of students passing all Exit-level TAAS tests intercepts, $F(1,6) = 14.659$, $p = 0.009$. Post hoc t tests revealed that the percentage of students passing all Exit-level TAAS tests intercepts was significantly different following the change for schools that switched to A/B block schedules ($M_{\text{Traditional Intercept}} = 28.20$ versus $M_{\text{A/B Intercept}} = 9.53$,

$\underline{t}(2) = 5.381$, $\underline{p} = 0.033$), but was not significantly different following the change for schools that switched to accelerated block schedules ($\underline{M}_{\text{Traditional Intercept}} = 37.25$ versus $\underline{M}_{\text{Accelerated Intercept}} = 42.49$, $\underline{t}(4) = -1.225$, $\underline{p} = 0.288$). There was a marginally significant traditional versus new schedule by type of change interaction for average ACT score intercepts, $\underline{F}$ (1,6) = 4.699, $\underline{p} = 0.073$. Post hoc $\underline{t}$ tests revealed that the average ACT score intercept was marginally significantly different following the change for schools that switched to A/B block schedules ($\underline{M}_{\text{Traditional Intercept}} = 19.87$ versus $\underline{M}_{\text{A/B Intercept}} = 16.29$, $\underline{t}(2) = 3.275$, $\underline{p} = 0.082$) but was not significantly different following the change for schools that switched to accelerated block schedules ($\underline{M}_{\text{Traditional Intercept}} = 19.80$ versus $\underline{M}_{\text{Accelerated Intercept}} = 22.48$, $\underline{t}(4) = -1.289$, $\underline{p} = 0.267$).

Table 17

Paired Samples Test for A/B and Accelerated Block Scheduling, Intercepts

High School Scheduling Type	Dependent Variable	Traditional Mean	Change Mean	Mean Difference	Std. Deviation	t	df	p
A/B	% Student Attendance	92.72	87.80	4.91	5.73	1.486	2	0.276
Accelerated		90.50	96.11	-5.60	3.56	-3.517	4	0.025
A/B	% Pass All Exit TAAS	28.20	9.53	18.67	6.01	5.381	2	0.033
Accelerated		37.25	42.49	-5.24	9.57	-1.225	4	0.288
A/B	Mean ACT	19.87	16.29	3.58	1.89	3.275	2	0.082
Accelerated		19.80	22.48	-2.68	4.65	-1.289	4	0.267

CHAPTER 5

SUMMARY AND RECOMMENDATIONS

Summary

The purpose of this study was to investigate the comparative effectiveness of traditionally scheduled, block scheduled and accelerated block scheduled high schools as measured by percentage of student attendance, graduation rate, dropout rate, percentage of students taking advanced courses, and percentage of students passing all Exit-level TAAS tests. In addition, the percentage of students taking College Admissions Tests (SAT and ACT), mean SAT total score, mean ACT total score, and the percentage of students who were at or above the criterion on the SAT or ACT were also evaluated. To demonstrate the impact of A/B and accelerated block scheduling versus traditional scheduling on the AEIS indicators, comparisons were made between schools that remained on traditional schedules for the duration of the study and the years under the new schedule for schools that changed to A/B and accelerated block schedules, and comparisons were made between the traditionally scheduled school years of schools that changed to A/B and accelerated block schedules and the years under the new schedules. Additionally, to demonstrate that any differences following the schedule changes were not just continuations of existing trends, comparisons were made between the schools that remained on traditional schedules throughout the study and the traditionally scheduled school years of the schools that changed scheduling. In all cases, means, trend slopes, and intercepts were compared.

Summary of the Findings and Conclusions

Research Question 1: Is there a statistically significant difference at the 0.05 level for the percentage of student attendance between schools on traditional high school schedules and schools on A/B block/accelerated block schedules?

The analyses of the percentage of attendance data did not reveal any indication of A/B and accelerated block scheduling having a positive impact compared to traditional scheduling. In fact, there was evidence that the accelerated block scheduling had a negative impact.

The analysis of means did not reveal any impact of the schedule changes. Mean percentages of attendance did not differ between traditionally scheduled schools and the A/B and accelerated block scheduled school years of the schools that changed scheduling. The mean percentages of attendance did not differ between the traditionally scheduled school years and the A/B and accelerated block scheduled school years of the schools that changed schedules. Additionally, for A/B block scheduled schools, the analyses of slopes and intercepts did not reveal any impact of the A/B block scheduling. Slopes and intercepts did not differ between traditionally scheduled schools and the A/B block scheduled school years of the schools that changed scheduling, and the slopes and intercepts did not differ between the traditionally scheduled school years and the A/B block scheduled school years of the schools that changed schedules.

For accelerated block scheduled schools, however, the analyses of slopes and intercepts revealed the possible negative impact of switching to accelerated block scheduling. Percentages of attendance tended to decline across the accelerated block scheduled years of the schools that changed to accelerated block schedules, whereas percentages did not change across the traditionally scheduled school years of schools that changed to accelerated block schedules. Additionally, percentages of attendance tended to increase across the eight years of the study of schools that remained on traditional schedules.

Research Question 2: Is there a statistically significant difference at the 0.05 level for graduation rate between schools on traditional high school schedules and schools on A/B block/accelerated block schedules?

The analyses of the graduation rate data did not reveal any indication of A/B and accelerated block scheduling having a positive or negative impact compared to traditional scheduling.

The analysis of means did not reveal any impact of the schedule changes. Mean graduation rate did not differ between traditionally scheduled schools and the A/B and accelerated block scheduled school years of the schools that changed scheduling, and the graduation rate did not differ between the traditionally scheduled school years and the A/B and accelerated block scheduled school years of the schools that changed schedules. Additionally, for A/B and accelerated block scheduled schools, the analyses of slopes and intercepts did not reveal any impact of the A/B or accelerated block scheduling. Slopes and intercepts did not differ between traditionally scheduled schools and the A/B block or accelerated block scheduled school years of the schools that changed scheduling, and the slopes and intercepts did not differ between the traditionally scheduled school years and the A/B block or accelerated scheduled school years of the schools that changed schedules.

Research Question 3: Is there a statistically significant difference at the 0.05 level for dropout rate between schools on traditional high school schedules and schools on A/B block/accelerated block schedules?

The analyses of the percentages of dropout data revealed some indication of A/B and accelerated block scheduling having a positive impact on dropout rates compared to traditional scheduling. The analyses of the mean percentages of students dropping out showed that the percentage of dropouts was lower for schools on A/B block schedules than for schools on traditional schedules. Additionally, regardless of the type of change (either A/B or accelerated block), the percentages of dropouts were lower during the years under the changed schedules than during the years under the traditional schedules.

The analyses of slopes and intercepts and visual inspection of these data revealed that for all of the schools, dropout percentages were higher during the first year of the study and then leveled out. In fact, the statistically significant difference between the slopes during the traditionally scheduled years ($\underline{M}_{Slope}$= -2.3) of schools that changed to A/B and accelerated block schedules and the slopes during the years following the change ($\underline{M}_{Slope}$= 0.14) confirm this. The only reason that the trend is not apparent in the slope and intercept data for the schools that remained on the traditional schedules across the study is because the regression slopes and intercepts were based on dropout rates across the eight years (i.e., slopes based on the first two or three years would be steep and negative, whereas slopes based on the last five or six years would be relatively flat). A contributing factor to the sharp negative slope for all scheduling types is school districts across Texas began making a concerted effort to ‘recover’ dropouts due to changes in accountability to the state.

Research Question 4: Is there a statistically significant difference at the 0.05 level in percentage of students taking advanced courses between schools on traditional high school schedules and schools on A/B block/accelerated block schedules?

The analyses of the percentage of students taking advanced courses data did not really reveal any indication of A/B or accelerated block scheduling having a positive or negative impact compared to traditional scheduling. The analyses of means, slopes, and intercepts show that the schools that switched to A/B block schedules had lower percentages of students taking advanced courses during the traditionally scheduled school years and then steadily increased their percentages and then made the change to A/B block scheduling. After making the switch, their percentages of students taking advanced courses merely equaled the percentages of students taking advanced courses in the schools that remained on traditional schedules across the study and in schools that were on accelerated block schedules (for schools that switched to accelerated block schedules, the percentages of students taking advanced courses prior to the schedule change did not differ from the percentages taking advanced courses after the schedule change).

Research Question 5: Is there a statistically significant difference at the 0.05 level in percentage of students passing all Exit-level TAAS tests between schools on traditional high school schedules and schools on A/B block/accelerated block schedules?

The analyses of the percentages of students passing all Exit-level TAAS tests data revealed some indications of A/B and accelerated block scheduling having a positive impact compared to traditional scheduling. The analyses of means showed that regardless of whether the schools changed to A/B or accelerated block scheduling, the percentages of students passing TAAS Exit-level exams was higher during the years following the change than during the years under traditional scheduling. This performance increase must be treated with caution, however, because neither the performance after the schedule changes nor the performance before the schedule changes differed from the performance of schools that remained on traditional schedules across the study. The analyses of the slopes and intercepts data shows that the increased performance of schools that switched to A/B block schedules occurred over time following the schedule changes (a steep slope).

The analyses of slope and intercept data shows that the increased performance, as shown in the analysis of the means, of schools that switched to accelerated block schedules may have been merely a reflection of steadily increasing performances across the study because the slopes did not differ between the traditionally scheduled school years and the years under the accelerated block schedules. Thus, with an increasing slope across the eight years, means based on data collected in the later years will be higher than means based on data collected in the earlier years.

Research Question 6: Is there a statistically significant difference at the 0.05 level in percentage of students taking the SAT/ACT College Admissions Tests between schools on traditional high school schedules and schools on A/B block/accelerated block schedules?

The analyses of the percentages of students taking the SAT/ACT data did not reveal any indication of A/B and accelerated block scheduling having a positive impact compared to traditional scheduling. In fact, there was evidence that A/B block scheduling had a negative impact. Though there were no differences in the means between the traditionally scheduled school years of the schools that changed scheduling and the years following the schedule changes and between the means for schools that remained on traditional schedules across the study and the A/B and accelerated block scheduled years of the schools that changed scheduling, differences in slopes revealed the possible negative impact of switching to A/B block scheduling but not accelerated block scheduling. During the traditionally scheduled school years of schools that switched to A/B block schedules, the percentage of students taking the SAT/ACT increased; however, during the A/B block scheduled school years, the percentage of students taking the SAT/ACT decreased. Because neither the increasing nor the decreasing trends were significantly different from the trend for the schools that remained on traditional schedules across the study, the decrease should be treated with caution. The slopes for the traditionally scheduled school years of the schools that switched to accelerated block schedules and the slopes for the accelerated block scheduled school years did not differ, nor did either differ from the slope for the schools that remained on traditional schedules across the study.

Research Question 7: Is there a statistically significant difference at the 0.05 level in mean SAT score between schools on traditional high school schedules and schools on A/B block/accelerated block schedules?

The analyses of the mean SAT data revealed some indication of A/B and accelerated block scheduling having a positive impact compared to traditional scheduling. The analysis of means showed that mean SAT scores were higher during the A/B and accelerated block scheduled years than the traditionally scheduled years of schools that changed scheduling. These patterns must be treated with caution, however, because neither the mean SAT scores for the A/B nor accelerated block scheduled years differed from the mean SAT scores for schools that remained on traditional schedules across the study. Additionally, it appears that mean SAT scores increased for all schools (traditional, A/B block, and accelerated block) during the 1995-1996 school year. Thus, a district-wide push for higher scores may have been implemented at that time. (No differences in slopes were found).

Research Question 8: Is there a statistically significant difference at the 0.05 level for mean ACT score between schools on traditional high school schedules and schools on A/B block/accelerated block schedules?

The analyses of the mean ACT score data revealed an indication of A/B block scheduling having a positive impact compared to traditional scheduling. Though there were no differences in the analyses of means, the analyses of slopes revealed the potential positive impact of switching to A/B block scheduling. During the traditionally scheduled school years of schools that switched to A/B block scheduling, the mean ACT scores were decreasing, whereas after switching to A/B block scheduling, the scores leveled off (and slightly increased, $\underline{M}_{Slope} = 0.13$). Of course, this possible positive impact should be treated with caution. The decreasing ACT scores for the traditionally scheduled school years of schools that switched to A/B block schedules were significantly different (more negative) from the trends for the traditionally scheduled school years of schools that switched to accelerated block schedules and from the trends for schools than remained on traditional schedules across the study. Additionally, performance did not increase during the A/B block scheduled years, and performance was not above the performance under the other schedules.

Research Question 9: Is there a statistically significant difference at the 0.05 level in percentage of students at or above the criterion on the SAT/ACT College Admissions Test between schools on traditional high school schedules and schools on A/B block/accelerated block schedules?

The analyses of the percentage of students at or above the criterion on the SAT/ACT test did not reveal any impact of the schedule changes. Mean percentage of students at or above the criterion did not differ between traditionally scheduled schools and the A/B and accelerated block scheduled school years of the schools that changed scheduling. The percentages did not differ between the traditionally scheduled school years and the A/B and accelerated block scheduled school years of the schools that changed schedules. Additionally, for A/B and accelerated block scheduled schools, the analyses of slopes and intercepts did not reveal any impact of A/B block scheduling. Slopes and intercepts did not differ between traditionally scheduled schools and the A/B block or accelerated block scheduled school years of the schools that changed scheduling, and the slopes and intercepts did not differ between the traditionally scheduled school years and the A/B block or accelerated scheduled school years of the schools that changed schedules.

RECOMMENDATIONS

Several schools that use block/accelerated block scheduling use various methods to dodge the ‘pitfalls of restructuring’ by telling teachers not to plan lessons. It is critical to plan for early intervention for those students who are not performing at their best. Several policies should be re-evaluated including athletic eligibility and achievement testing. It is imperative that a school district be given time to make a change to block/accelerated block scheduling (Schoenstein, 1996, July 4).

Staff members who teach an accelerated block of 90-minutes in length should not teach more than three of the four blocks of time. For instructional leadership to monitor, promote, and support professional staff and programs, department chairs of large departments should only teach two of the four blocks of time (Wasson, 1996, July 27). Some specific courses, such as band, choir, and peer counseling, should meet daily.

In order for substitute teachers to familiarize themselves with the new block/accelerated block scheduling, it is important to have an orientation for substitute teachers as the concept of block/accelerated block scheduling is not consistent with the norm. The scheduling type adopted should prevail because it meets the needs and concerns of the district or school. (Schoenstein, 1996, July 4). Teachers need the opportunity to experiment with the new instructional methods.

There are three issues with which all schools are concerned: providing quality time, creating a positive school climate, and providing varying learning time (Canady & Rettig, 1995, November). When students attend six to eight classes of “unconnected curriculum” each day or students are pulled from music or art to participate in an English as a Second Language (ESL) program, fragmented time occurs. A short instructional period promotes negative classroom climates. The most critical and unresolved time allocation issue that schools face is the indisputable fact that some students need more time to learn than others. The school climate is affected by the school schedule. Canady and Rettig state that disciplinary problems may arise when scheduled transitions take place (passing periods).

During the first year of implementing block scheduling at Center Middle School in Missouri, discipline referrals dropped more than 60 percent, suspensions declined proportionately, daily attendance increased from 92 to 94 percent and surveyed parents and students approved of the new block schedule (Hackmann, 1995, November).

Further research on A/B block and accelerated block schedules should include: a) the impact of A/B block and accelerated block scheduling on student achievement for special populations (for example, LEP, Special Education, At-Risk, Gifted and Talented, Title I, or Career and Technology); b) how A/B block and accelerated block schedules impact school climate, including discipline referrals; c) teacher attendance; d) the perception of benefits by teachers and students; e) teacher methodology and staff development in preparation for changing to block scheduling; f) administrative decision-making related to block scheduling; and g) this study should be expanded to include all high schools in Tarrant County.

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APPENDIX A

Block /Accelerated Block Scheduling Form for Principals

To:	High School Principals
From:	Pat McCumber
Subject:	Block/Accelerated Block Scheduling
Date:	August 12, 1999

To assist with a research study on a comparison of traditionally scheduled versus block/accelerated block scheduled high schools, please complete this form for your campus:

Semester/Year A/B Block began: ___________________________________

Semester/Year Accelerated Block began: ___________________________

Semester/Year Returned to Traditional schedule: ____________________

Never used Block or Accelerated Block scheduling: __________________

School Name______________________________ Loc# ____________

____
Signature of person completing form

Please return via fax, 3345,
by Tuesday, August 17, 1999
Thank you

APPENDIX B

AEIS data, 1991-1992 through 1998-1999

Table B1

1991-1992 school year

1991/1992	Traditional											
School	A	B	C	D	E	F	G	H	I	J	K	L
% Student Attendance	93.0	91.8	88.9	90.9	93.2	90.3	92.3	90.4	92.3	93.3	93.8	89.0
Grad Rate	83.6	97.2	87.0	83.4	84.1	89.6	75.9	97.5	61.6	99.5	99.3	70.6
Dropout Rate	8.9	5.7	15.6	5.4	6.6	13.7	9.3	7.4	4.6	4.4	4.9	8.2
% Adv Courses	1.9	3.6	1.3	8.0	4.8	3.3	1.4	3.9	1.7	5.0	3.9	-
% Pass All Exit TAAS	36.0	57.5	25.0	37.3	34.7	36.2	19.9	52.5	19.7	56.6	49.7	19.0
% SAT/ACT Tests	43.8	72.0	59.6	66.7	72.0	42.6	30.7	63.5	37.3	78.3	66.2	51.4
Mean SAT	782	902	638	863	821	778	734	929	662	914	865	715
Mean ACT	19.4	20.1	18.5	22.1	19.2	18.7	16.1	19.2	17.3	21.5	20.5	16.4
% At/Above Criterion	6.3	21.7	1.1	21.4	15.0	3.2	3.0	25.8	0.9	27.2	15.8	0.7
Total Students	705	1295	662	1241	1208	1300	953	2355	1561	1752	1449	1468

- No students were in that classification   * Fewer than five students were in that classification

Table B2

1992-1993 school year

1992/1993	Traditional											
School	A	B	C	D	E	F	G	H	I	J	K	L
% Student Attendance	92.0	90.1	88.4	90.4	91.8	91.2	87.2	87.6	89.7	92.8	91.6	88.1
Grad Rate	86.5	76.6	80.8	82.7	86.6	80.7	56.7	82.0	74.3	86.4	81.5	88.9
Dropout Rate	3.4	1.8	3.5	3.3	0.8	1.9	3.9	3.5	2.3	1.5	0.5	3.2
% Adv Courses	9.9	19.9	7.3	26.6	21.7	18.5	12.7	19.1	5.5	28.5	17.1	12.6
% Pass All Exit TAAS	27.9	54.0	23.4	34.8	36.5	27.5	21.0	42.3	22.8	59.8	51.1	28.6
% SAT/ACT Tests	39.4	84.7	76.2	68.4	65.2	44.4	48.5	70.6	42.5	80.2	74.0	44.7
Mean SAT	806	888	658	876	847	835	708	940	670	905	835	704
Mean ACT	18.6	20.5	15.4	21.8	18.9	19.6	17.8	21.2	16.4	20.6	19.6	17.3
% At/Above Criterion	3.7	27.4	0.0	20.9	16.0	6.1	7.4	29.4	0.0	26.2	14.9	1.4
Total Students	703	1274	651	1217	1167	1285	929	2310	1538	1725	1413	1462

- No students were in that classification   * Fewer than five students were in that classification

Table B3

<u>1993-1994 school year</u>

1993/1994	A/B	Traditional										
School	I	A	B	C	D	E	F	G	H	J	K	L
% Student Attendance	88.1	93.5	90.4	89.0	90.6	91.6	91.7	88.3	87.2	92.7	90.8	90.7
Grad Rate	78.4	75.6	79.6	71.2	80.0	82.0	70.1	64.4	82.5	86.8	81.5	81.0
Dropout Rate	2.8	4.8	1.5	6.0	3.8	1.9	2.2	3.9	3.7	1.7	1.1	3.3
% Adv Courses	5.6	6.1	14.7	3.5	19.7	10.7	11.2	8.0	14.6	19.3	15.2	9.2
% Pass All Exit TAAS	22.9	39.8	59.4	31.5	36.6	40.1	39.4	31.3	47.2	62.2	47.7	28.1
% SAT/ACT Tests	43.0	32.9	97.1	80.7	76.1	68.8	51.1	46.3	67.7	80.8	78.3	59.0
Mean SAT	665	827	870	660	963	834	855	746	887	917	878	667
Mean ACT	15.7	17.1	20.3	14.7	21.5	18.9	21.4	15.9	20.2	21.2	19.2	15.8
% At/Above Criterion	0.0	3.7	26.3	1.2	35.8	13.4	14.9	7.5	21.8	30.3	20.3	0.5
Total Students	1,525	678	1228	658	1164	1188	1439	946	2233	1658	1,378	1505

- No students were in that classification * Fewer than five students were in that classification

Table B4

<u>1994-1995 school year</u>

1994/1995	A/B			Traditional								
School	C	I	K	A	B	D	E	F	G	H	J	L
% Student Attendance	91.7	87.1	91.2	93.1	90.9	89.0	91.0	91.4	86.5	92.5	92.2	91.1
Grad Rate	89.8	86.8	93.3	90.3	90.4	89.1	93.2	87.8	71.2	89.9	90.3	94.2
Dropout Rate	1.7	2.9	1.8	1.9	1.4	3.5	1.5	1.4	3.5	2.3	1.1	2.0
% Adv Courses	6.5	8.9	17.6	10.1	15.1	23.1	13.0	19.0	21.9	17.1	22.2	19.4
% Pass All Exit TAAS	34.0	27.0	51.4	41.7	61.1	35.7	33.2	47.1	29.7	45.4	64.8	31.5
% SAT/ACT Tests	53.6	40.4	81.2	41.0	78.5	71.3	55.1	42.0	59.3	63.2	80.1	54.5
Mean SAT	653	655	888	831	890	908	835	921	708	907	931	653
Mean ACT	15.6	16.3	20.4	18.9	20.2	18.5	17.8	22.3	18.6	19.7	21.6	15.5
% At/Above Criterion	4.8	0.8	21.1	5.0	23.0	26.9	9.2	13.8	6.6	20.9	33.2	0.5
Total Students	677	1440	1351	696	1227	1259	1216	1453	944	2204	1680	1462

- No students were in that classification * Fewer than five students were in that classification

Table B5

1995-1996 school year

1995/1996	Accelerated		A/B			Traditional						
School	F	L	C	I	K	A	B	D	E	G	H	J
% Student Attendance	91.5	89.9	93.5	87.7	92.3	93.7	92.8	91.4	92.0	88.2	93.5	91.2
Grad Rate	78.9	79.1	87.3	70.3	87.4	74.5	83.4	90.7	83.7	72.0	80.9	84.9
Dropout Rate	1.2	2.8	2.0	2.0	0.9	2.0	1.3	2.9	1.1	2.9	2.3	1.2
% Adv Courses	18.3	12.2	10.5	9.8	18.3	8.6	18.5	24.6	14.1	26.6	20.4	21.2
% Pass All Exit TAAS	49.7	39.2	25.9	32.6	57.7	48.9	58.3	46.6	52.8	33.9	58.0	66.6
% SAT/ACT Tests	53.1	58.1	*	38.3	73.3	59.5	82.8	72.4	56.4	73.6	68.4	87.6
Mean SAT	979	787	860	777	957	899	996	1004	917	875	1044	1026
Mean ACT	21.6	16.0	-	13.3	18.7	17.5	19.3	20.5	19.6	18.8	20.5	21.8
% At/Above Criterion	29.5	1.5	0.0	0.0	23.0	11.4	20.8	39.8	15.9	17.2	40.2	37.2
Total Students	1515	1643	694	1380	1398	674	1309	1238	1196	876	2179	1791

- No students were in that classification   * Fewer than five students were in that classification

Table B6

1996-1997 school year

1996/1997	Accelerated					A/B				Traditional		
School	B	D	F	J	L	C	G	I	K	A	E	H
% Student Attendance	92.6	92.2	89.4	91.2	89.7	92.6	85.8	89.3	91.5	92.7	91.7	93.5
Grad Rate	89.8	83.0	85.5	91.6	85.1	78.7	77.3	84.2	84.6	84.2	89.6	95.3
Dropout Rate	1.1	2.3	1.5	2.1	2.2	0.2	3.7	2.6	2.3	3.2	1.7	2.5
% Adv Courses	14.2	17.7	20.3	12.8	14.7	8.6	21.8	10.4	17.6	9.2	11.3	17.1
% Pass All Exit TAAS	72.4	48.8	47.0	68.9	43.4	35.7	35.1	39.9	71.0	45.5	60.0	58.6
% SAT/ACT Tests	78.5	75.1	42.2	74.1	46.9	30.0	56.3	33.2	69.0	49.1	51.7	57.3
Mean SAT	1010	982	999	999	828	791	773	744	944	886	906	1036
Mean ACT	21.5	19.3	21.8	21.0	17.1	*	16.9	15.5	19.1	19.1	17.8	21.9
% At/Above Criterion	28.0	32.3	35.8	30.3	4.7	0.0	3.7	1.6	18.1	11.1	18.9	39.4
Total Students	1354	1279	1599	1891	1603	831	1026	1241	1490	774	1249	2397

- No students were in that classification   * Fewer than five students were in that classification

Table B7

<u>1997-1998 school year</u>

1997/1998	Accelerated						A/B			Traditional		
School	B	D	F	G	J	L	C	I	K	A	E	H
% Student Attendance	92.4	91.9	90.1	85.9	90.6	88.3	91.8	92.1	92.0	93.0	93.0	90.6
Grad Rate	88.2	79.9	78.9	69.3	90.9	78.1	67.9	85.2	86.7	91.8	88.2	90.6
Dropout Rate	2.5	2.4	2.4	1.5	1.5	2.4	0.2	1.9	1.3	2.7	1.6	2.9
% Adv Courses	11.8	18.9	24.9	11.5	13.6	13.1	10.9	13.5	17.5	9.7	10.1	17.4
% Pass All Exit TAAS	68.9	50.3	62.3	38.8	67.9	46.9	37.3	55.9	70.9	52.2	61.8	61.8
% SAT/ACT Tests	68.0	67.0	52.5	60.2	71.7	45.8	21.0	37.9	65.5	51.5	52.3	57.5
Mean SAT	979	969	988	841	1007	803	823	775	975	866	900	1038
Mean ACT	20.5	19.2	20.7	17.9	20.3	16.6	16.8	15.9	18.9	16.3	17.3	19.0
% At/Above Criterion	27.4	31.2	25.8	10.8	32.8	1.0	4.5	3.0	25.6	3.9	8.7	37.9
Total Students	1505	1381	1619	1051	1969	1675	861	1277	1520	708	1313	2609

\- No students were in that classification * Fewer than five students were in that classification

Table B8

<u>1998-1999 school year</u>

1998/1999	Accelerated			A/B			Traditional					
School	B	F	L	C	I	K	A	D	E	G	H	J
% Student Attendance	90.3	88.2	86.5	93.5	91.2	92.4	92.4	91.2	92.6	86.4	91.2	90.3
Grad Rate	95.1	92.7	82.0	85.6	95.1	91.2	90.2	85.6	93.5	71.3	91.5	94.9
Dropout Rate	3.4	3.3	4.7	2.0	2.7	2.4	4.4	4.0	3.5	4.2	4.5	2.5
% Adv Courses	11.6	20.6	10.5	11.4	13.5	14.4	12.1	20.9	9.7	10.4	22.0	19.1
% Pass All Exit TAAS	76.7	62.0	51.6	61.2	60.7	81.8	53.6	59.2	69.8	54.0	67.4	71.9
% SAT/ACT Tests	75.0	47.8	50.9	20.8	28.0	68.0	39.3	64.8	54.1	60.8	55.7	68.2
Mean SAT	975	940	800	808	766	984	861	1004	890	774	1019	990
Mean ACT	19.7	20.1	16.6	16.8	16.0	19.9	19.7	19.4	18.1	16.4	20.1	20.7
% At/Above Criterion	23.0	25.0	3.6	4.0	0.0	24.1	14.3	34.1	12.3	6.5	38.0	30.8
Total Students	1,615	1,682	1,696	843	1,319	1,498	772	1,267	1,344	1,032	2,440	1,815

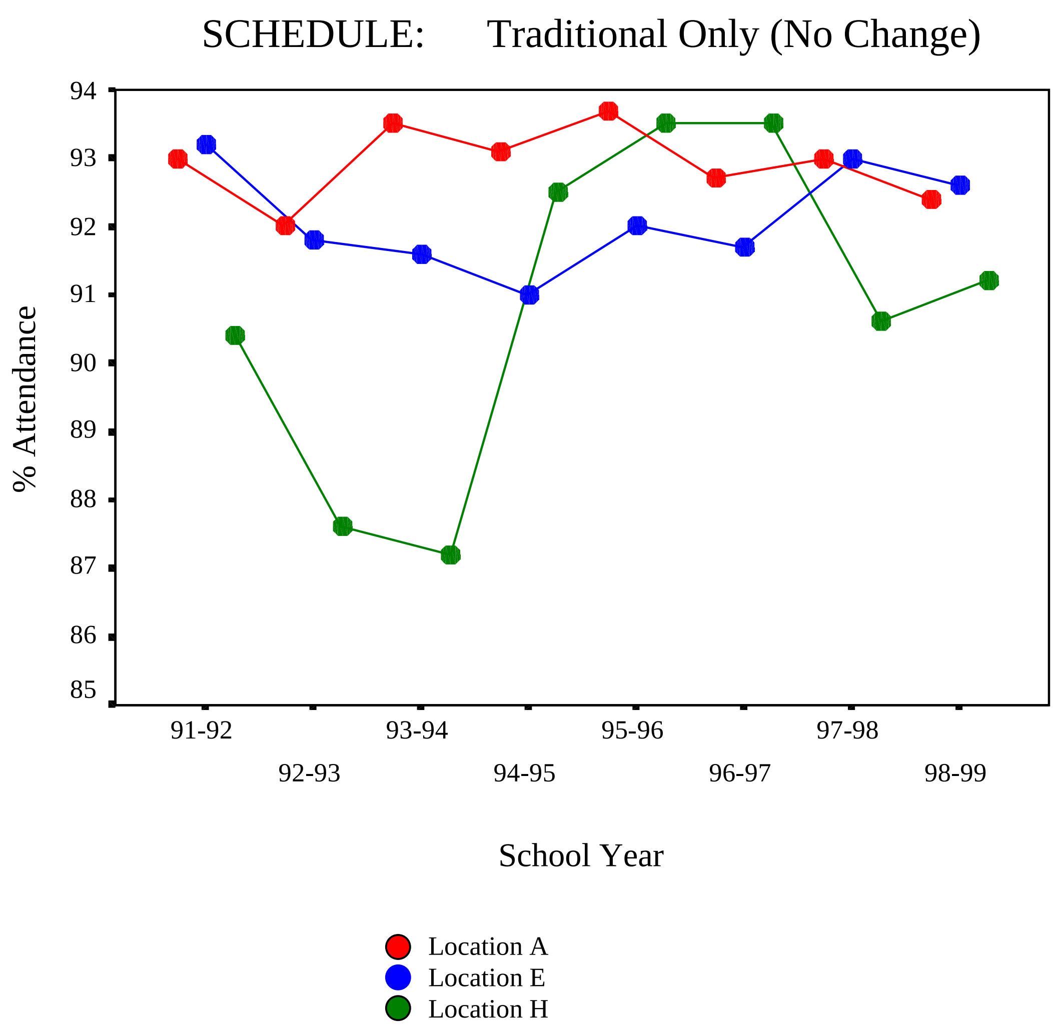
\- No students were in that classification * Fewer than five students were in that classification

APPENDIX C

Percentage of Student Attendance, 1991-1992 through 1998-1999

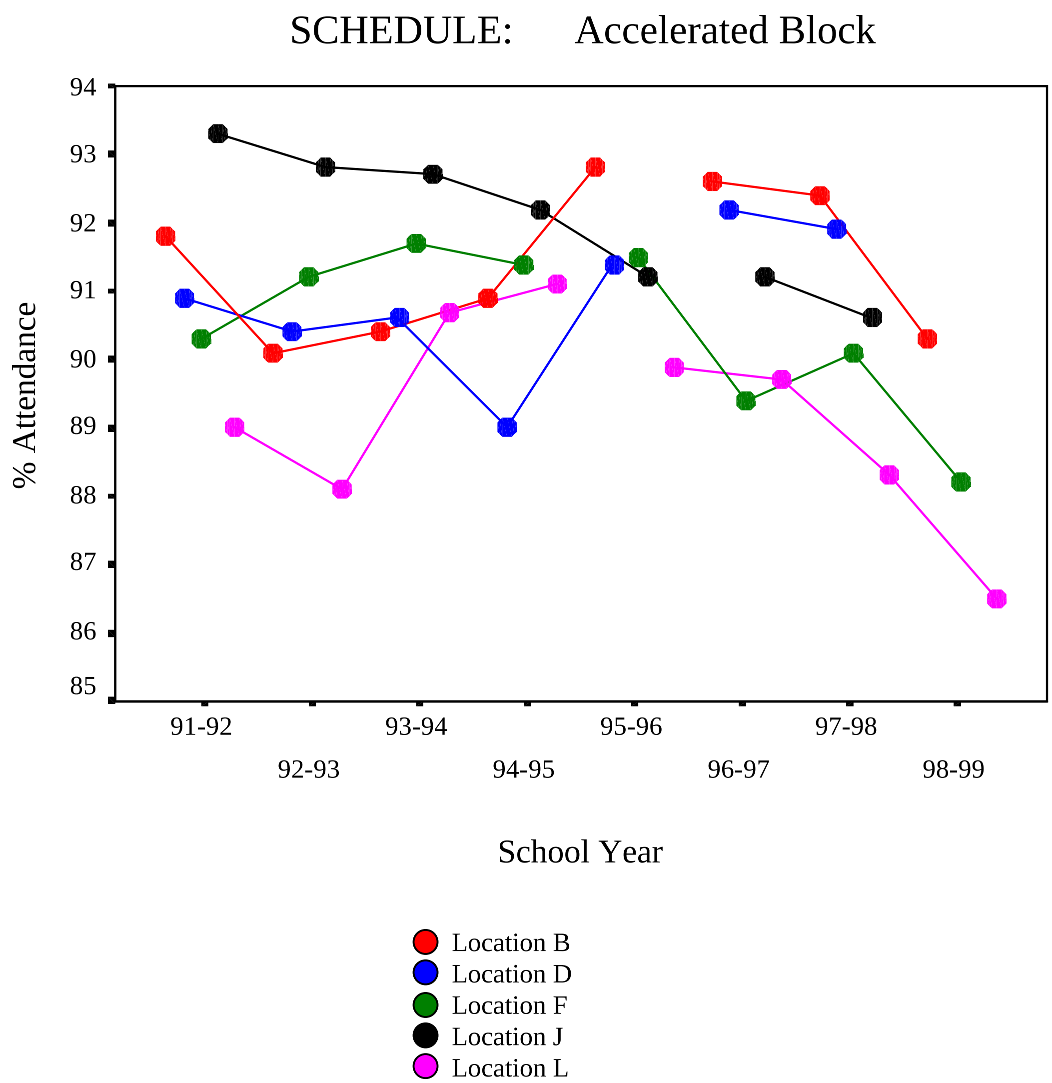
Graph C1

Traditional Only Schedule Schools



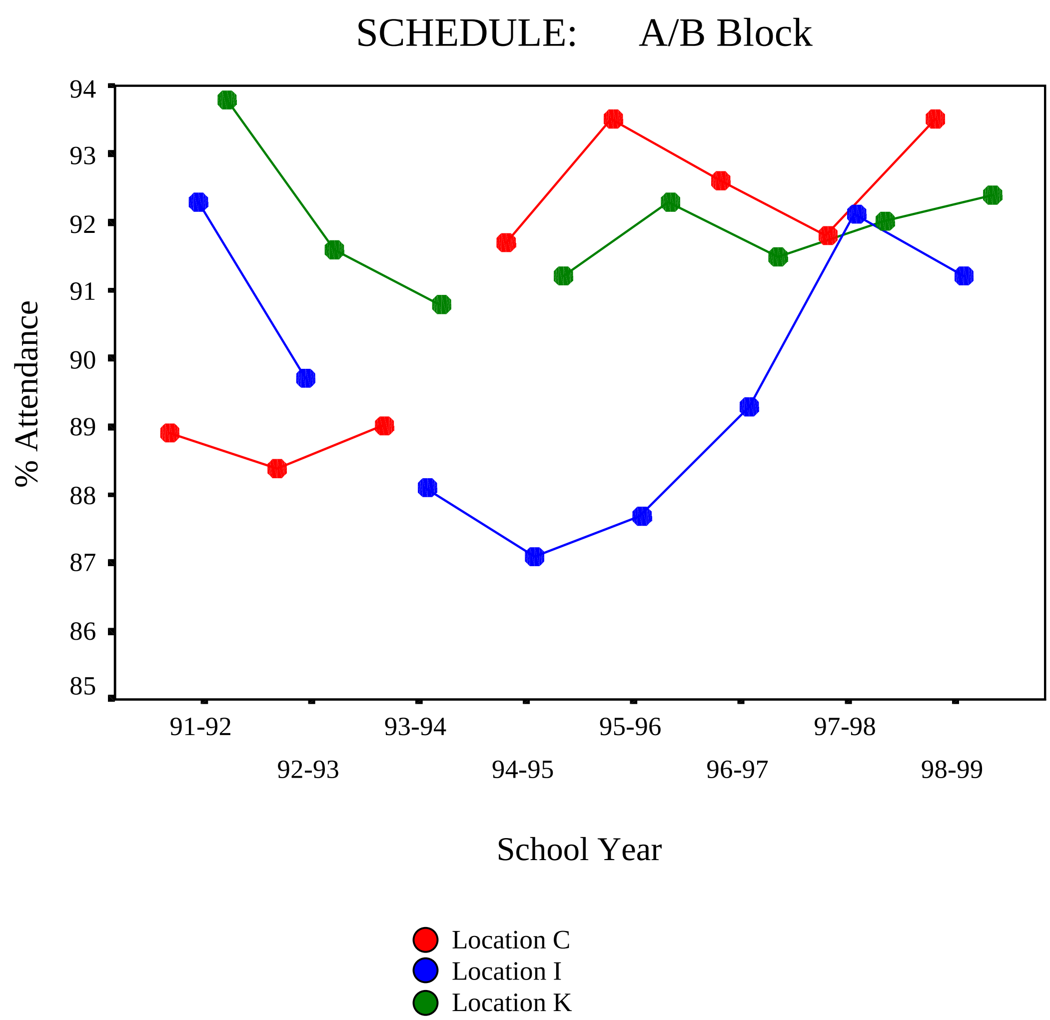
Graph C2

Accelerated Block Schedule Schools



Graph C3

<u>A/B Block Schedule Schools</u>

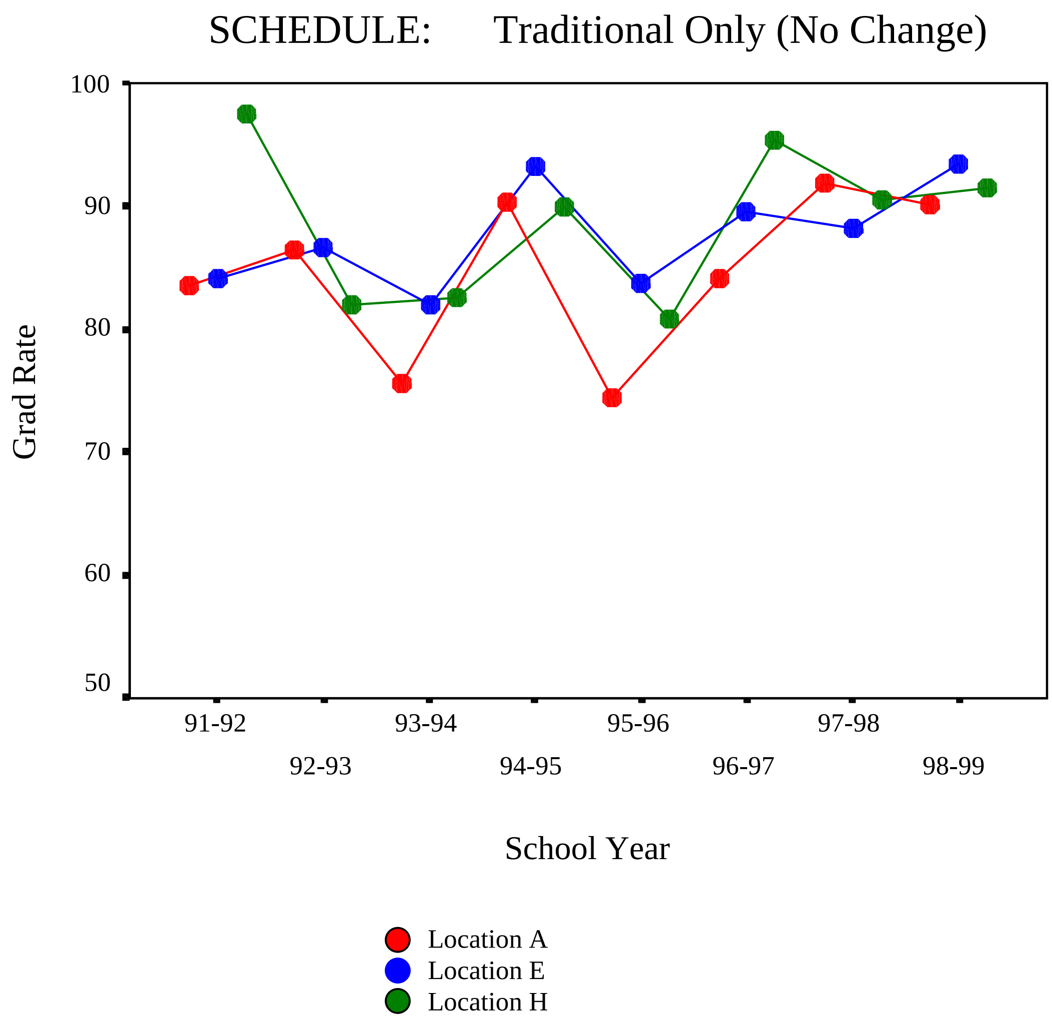


APPENDIX D

Graduation Rate, 1991-1992 through 1998-1999

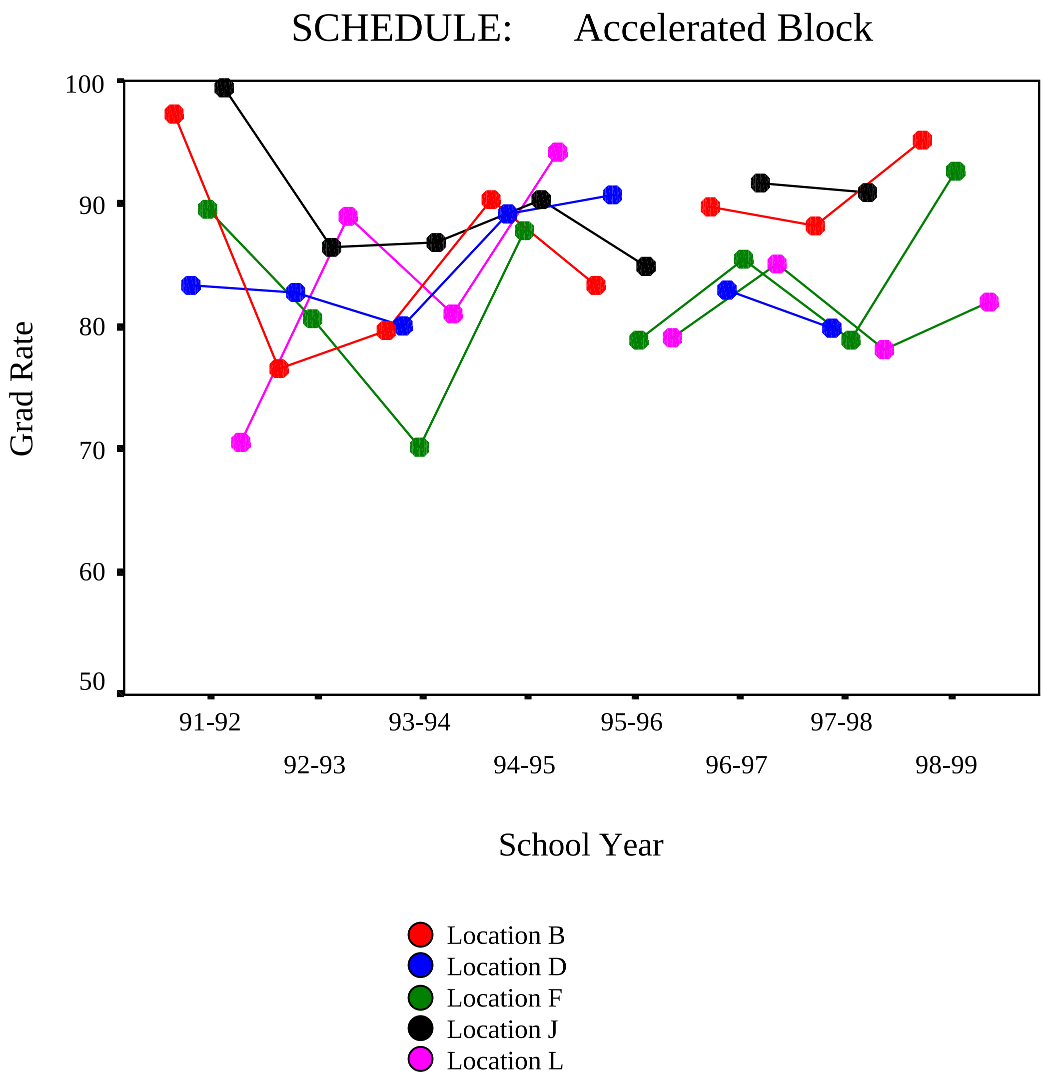
Graph D1

Traditional Only Schedule Schools



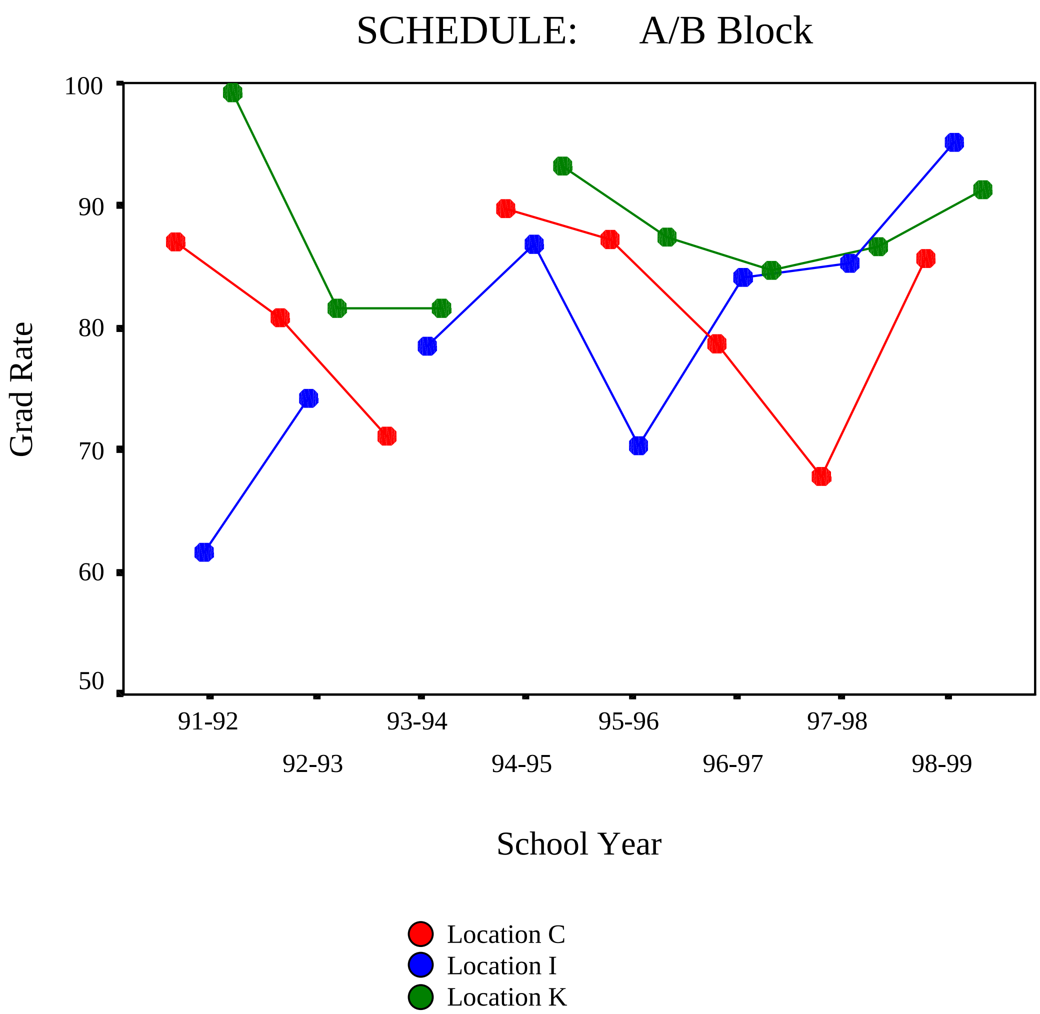
Graph D2

Accelerated Block Schedule Schools



Graph D3

A/B Block Schedule Schools

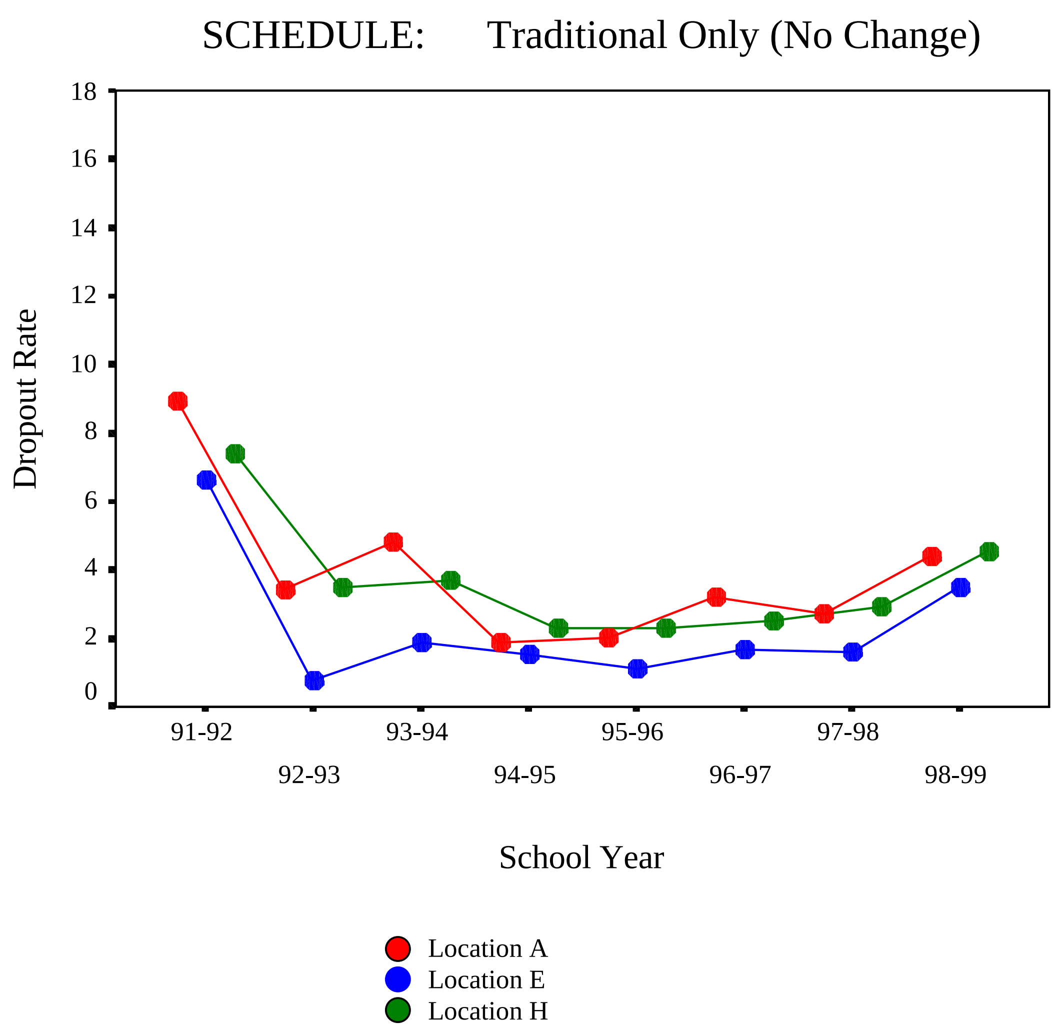


APPENDIX E

Dropout Rate, 1991-1992 through 1998-1999

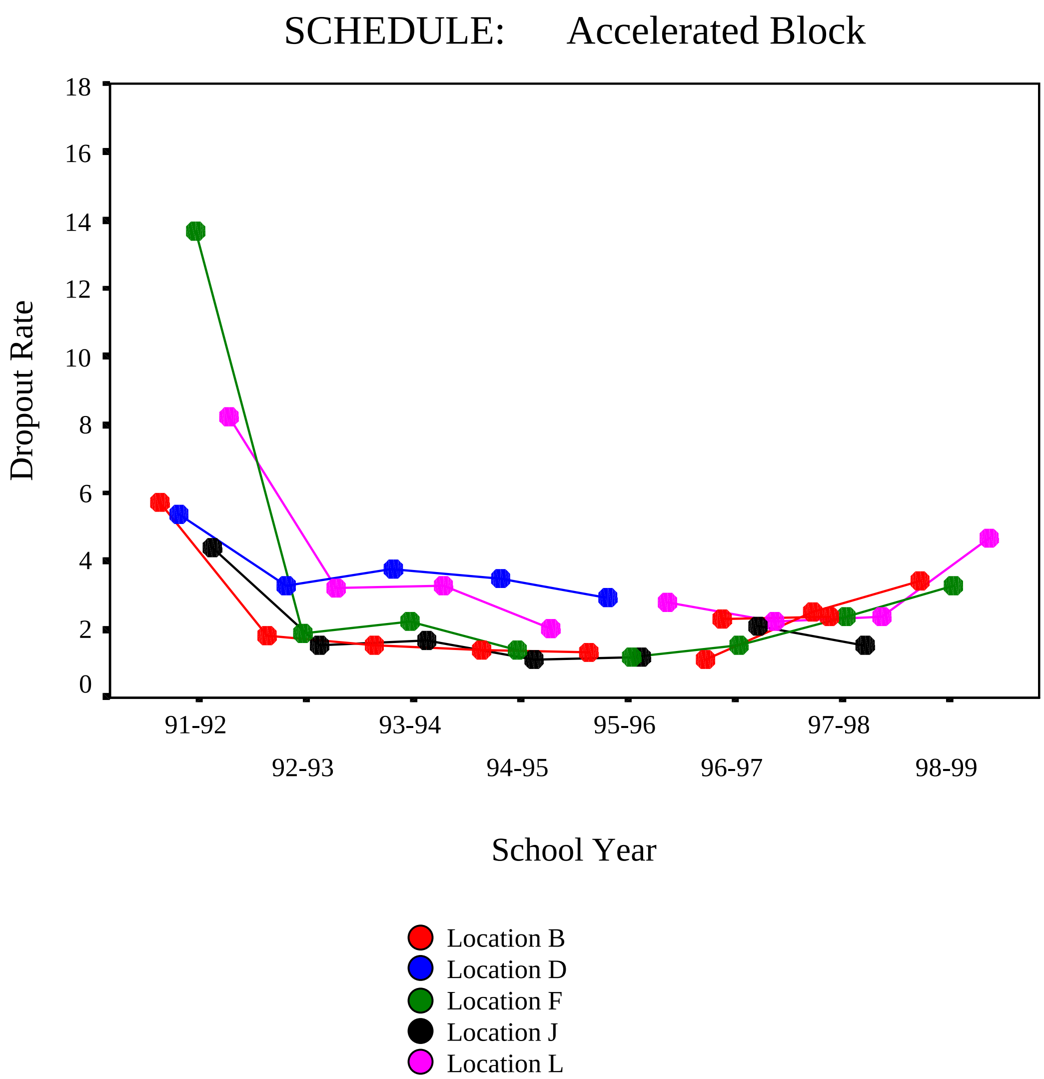
Graph E1

Traditional Only Schedule Schools



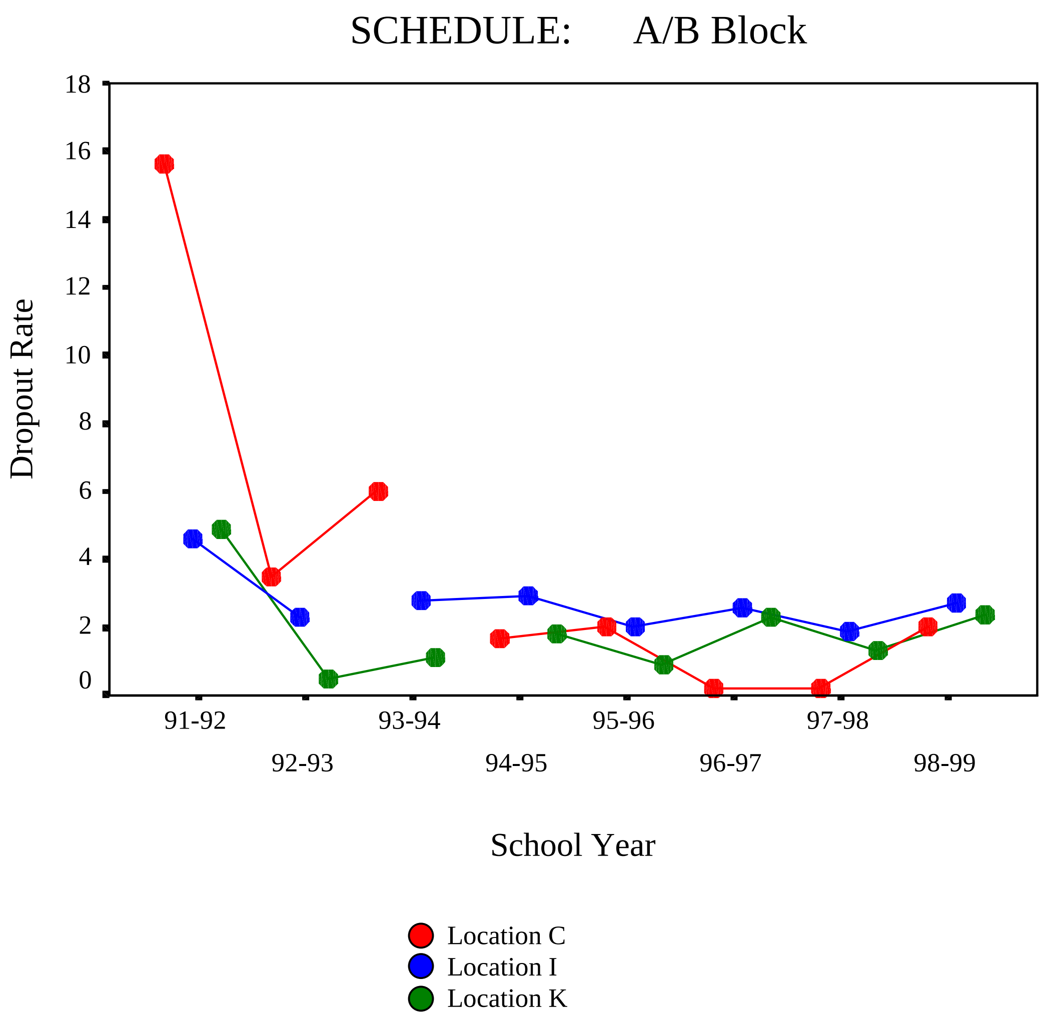
Graph E2

<u>Accelerated Block Schedule Schools</u>



Graph E3

A/B Block Schedule Schools

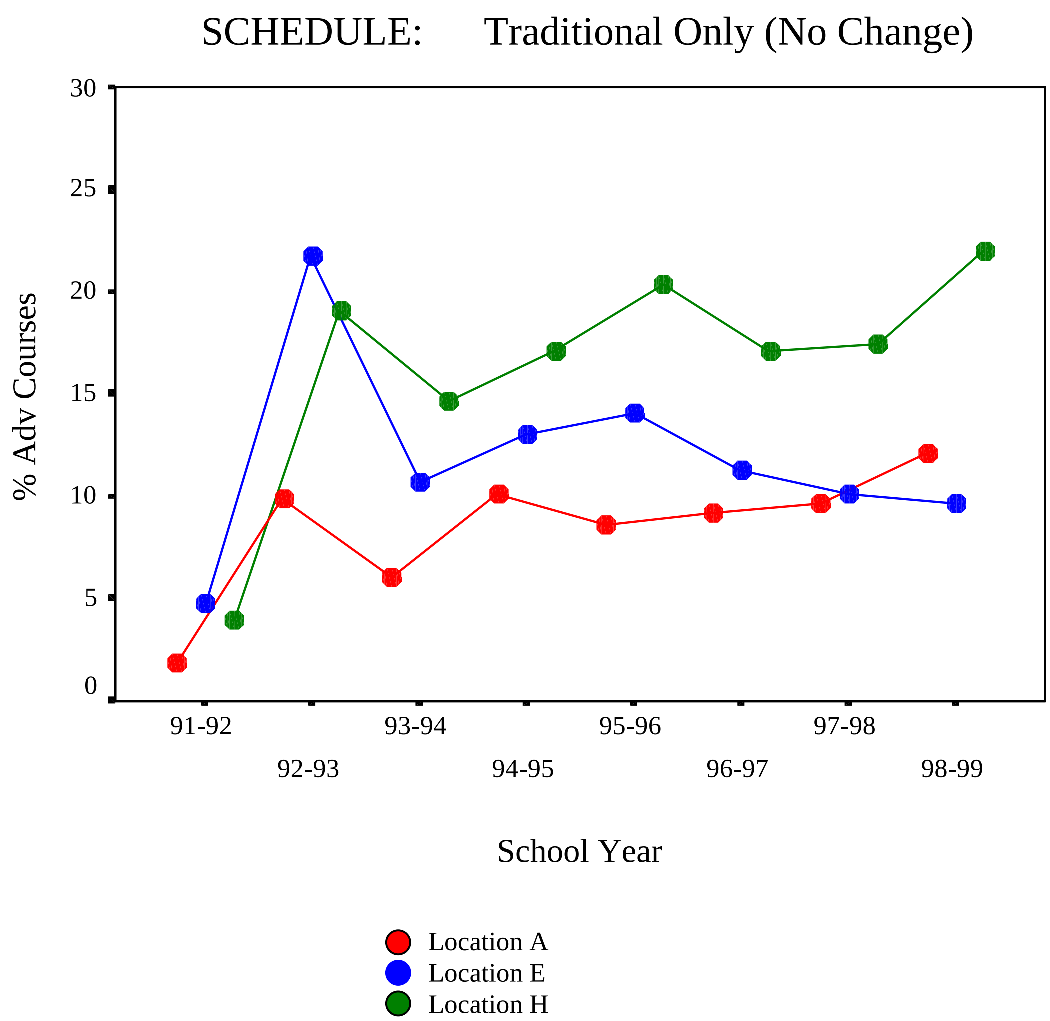


APPENDIX F

Percentage of Students Taking Advanced Courses, 1991-1992 through 1998-1999

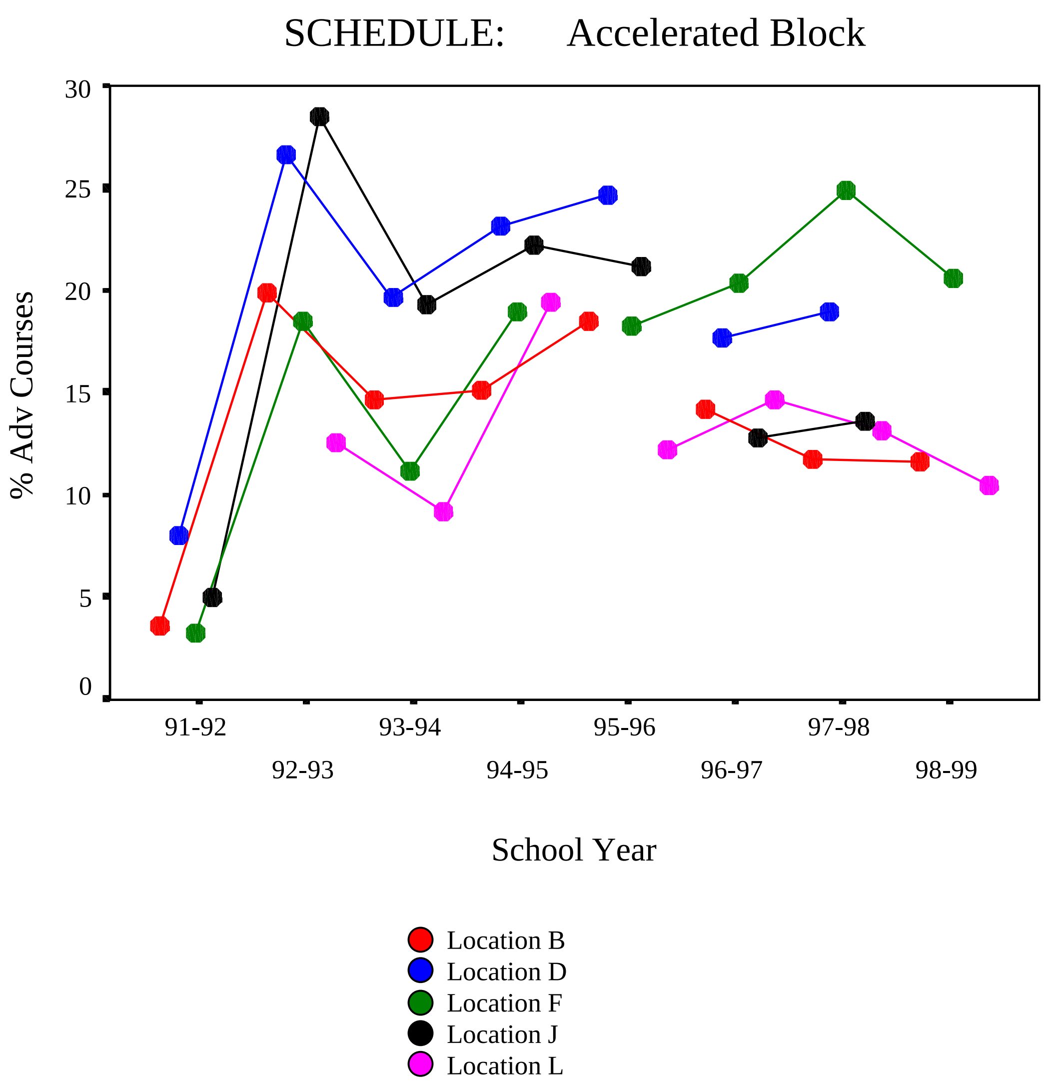
Graph F1

Traditional Only Schedule Schools



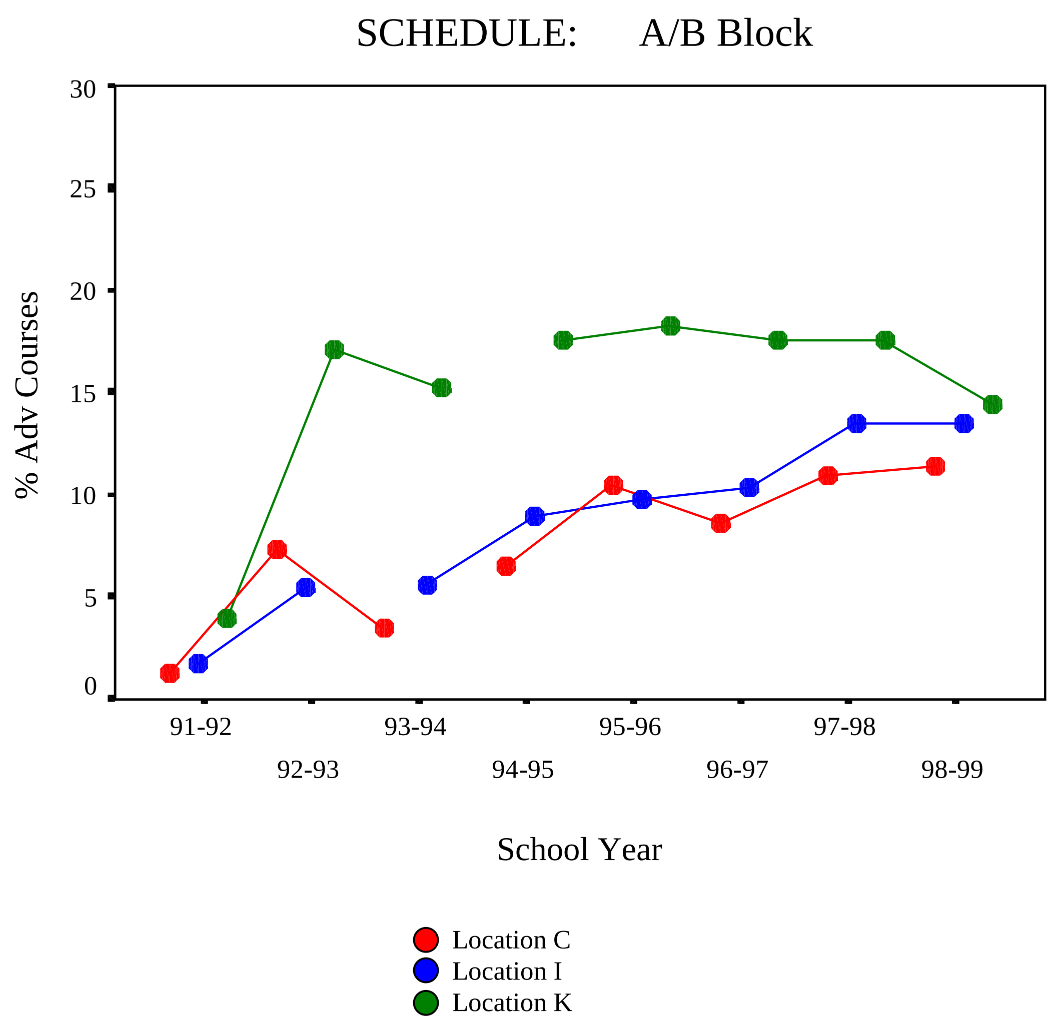
Graph F2

Accelerated Block Schedule Schools



Graph F3

<u>A/B Block Schedule Schools</u>

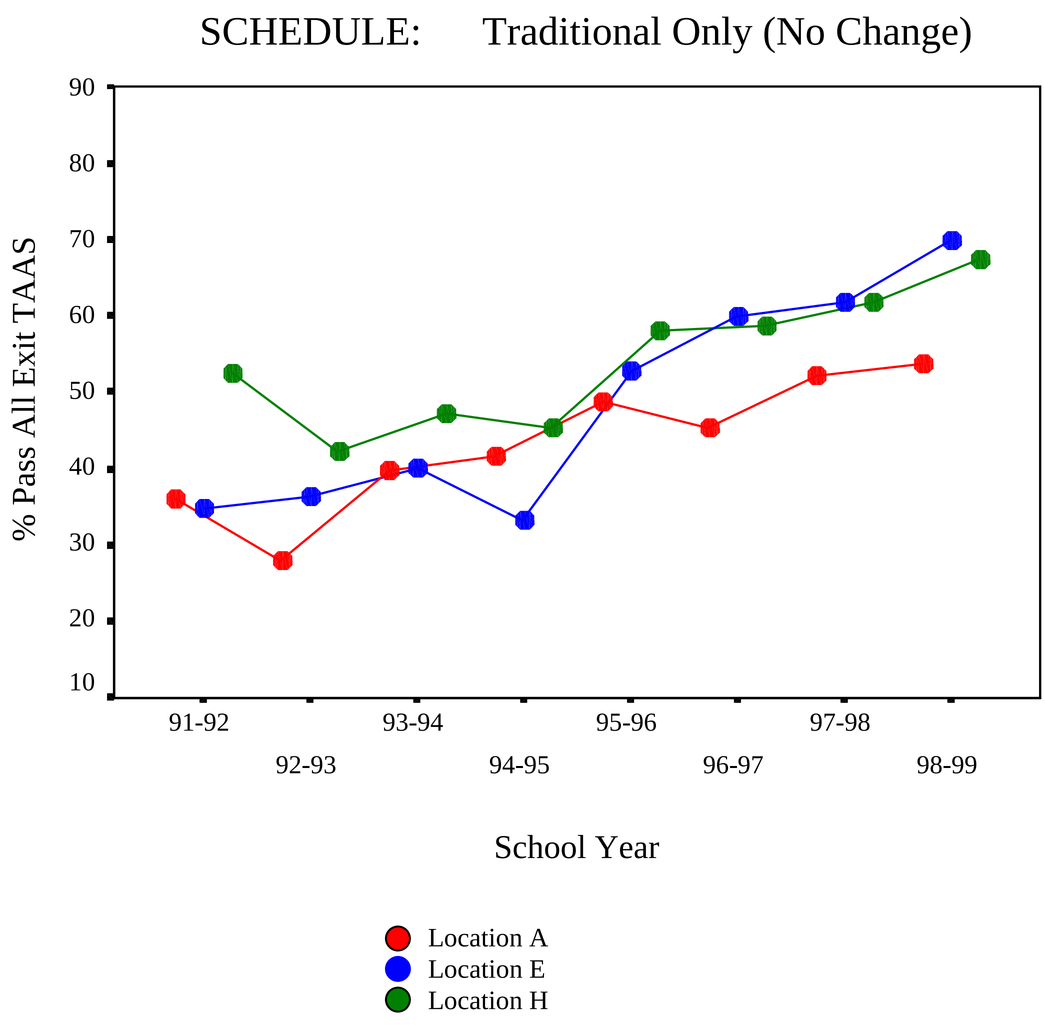


APPENDIX G

Percentage of Students Passing All Exit-Level TAAS Tests, 1991-1992 through 1998-1999

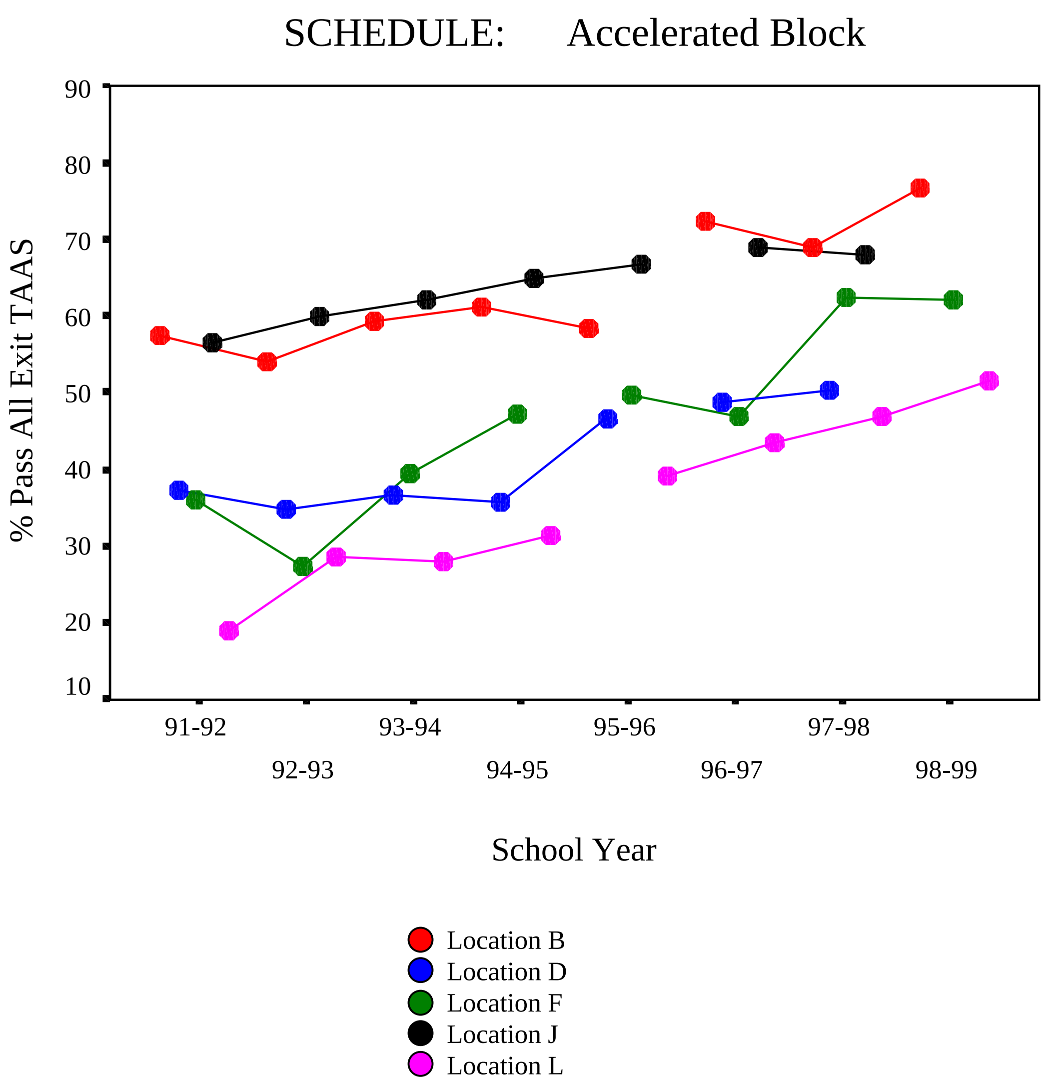
Graph G1

Traditional Only Schedule Schools



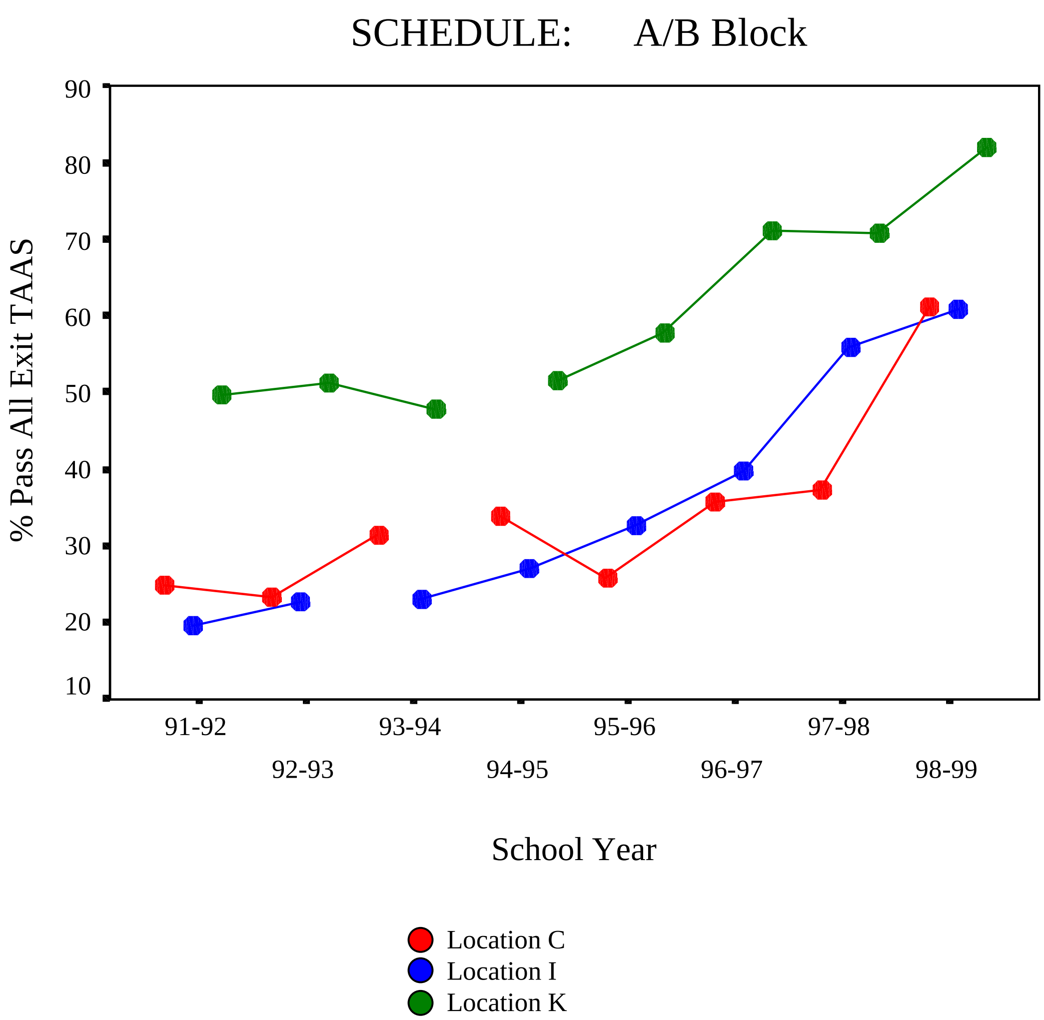
Graph G2

<u>Accelerated Block Schedule Schools</u>



Graph G3

<u>A/B Block Schedule Schools</u>

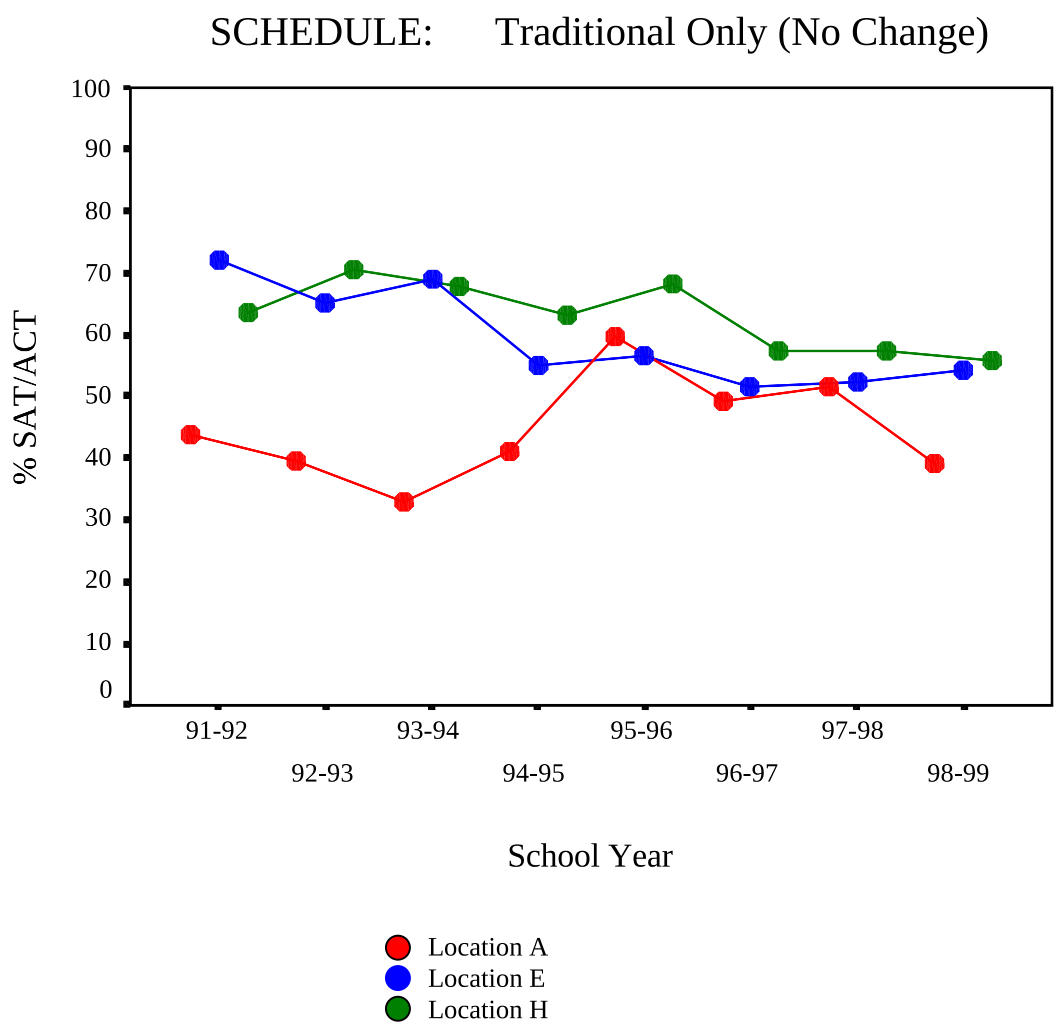


APPENDIX H

<u>Percentage Students Taking the SAT/ACT College Admission Tests, 1991-1992 through 1998-1999</u>

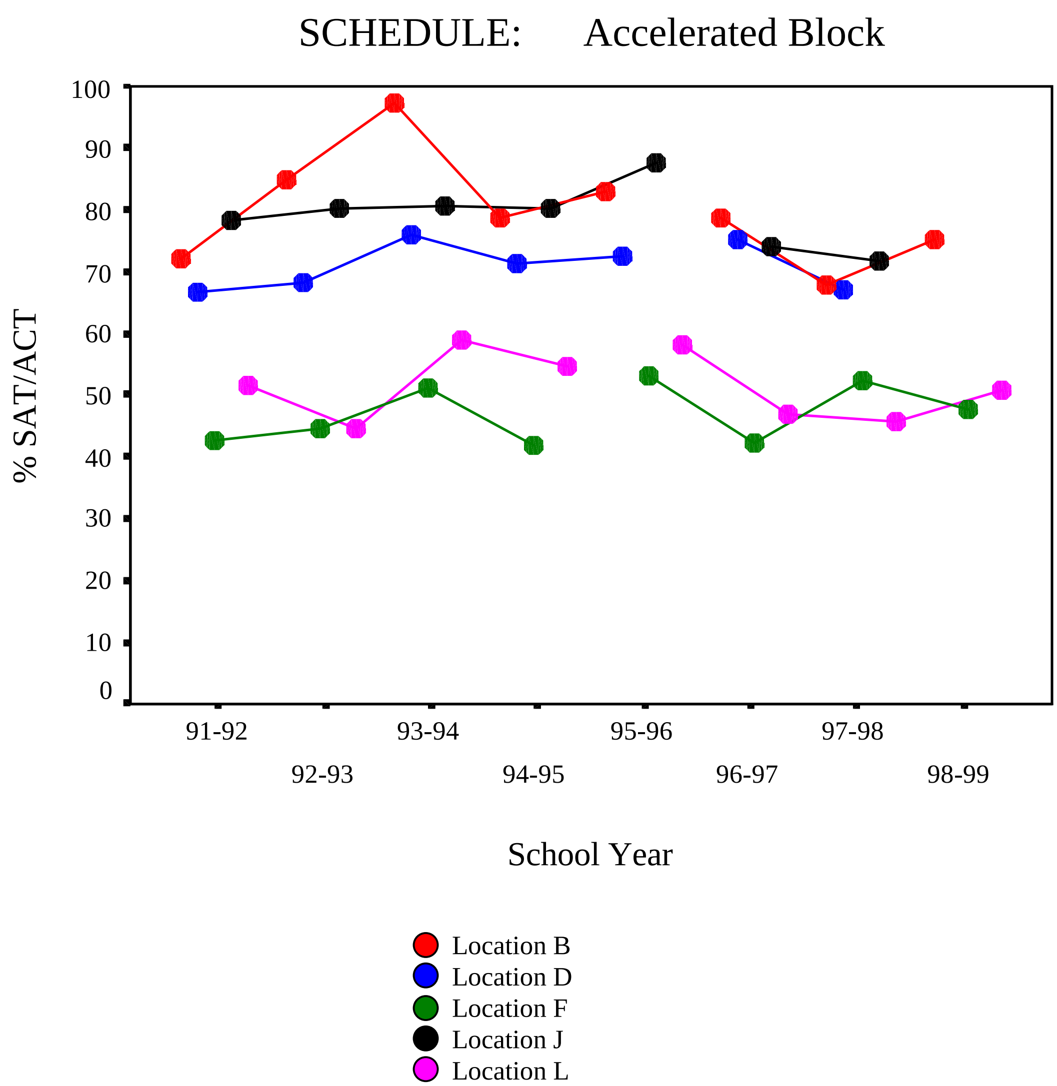
Graph H1

<u>Traditional Only Schedule Schools</u>



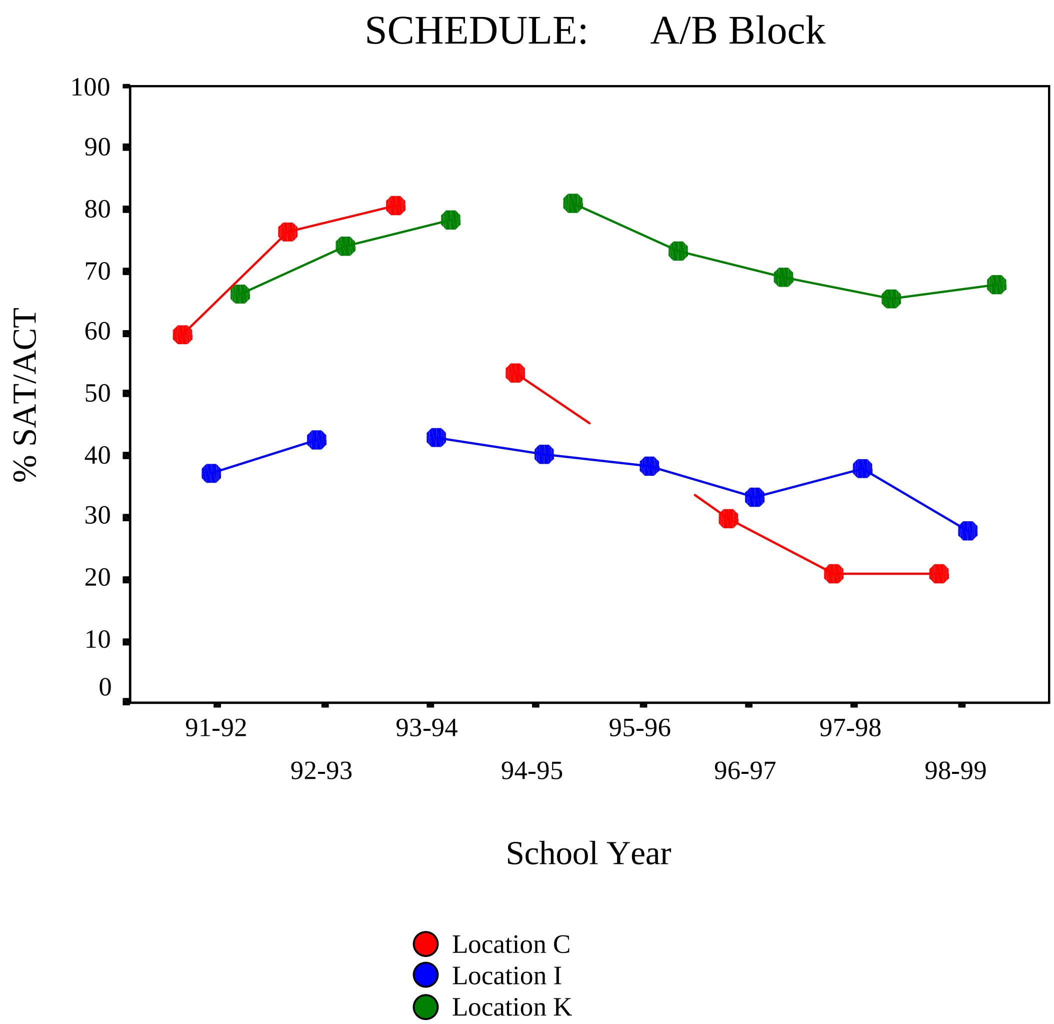
Graph H2

<u>Accelerated Block Schedule Schools</u>



Graph H3

<u>A/B Block Schedule Schools</u>

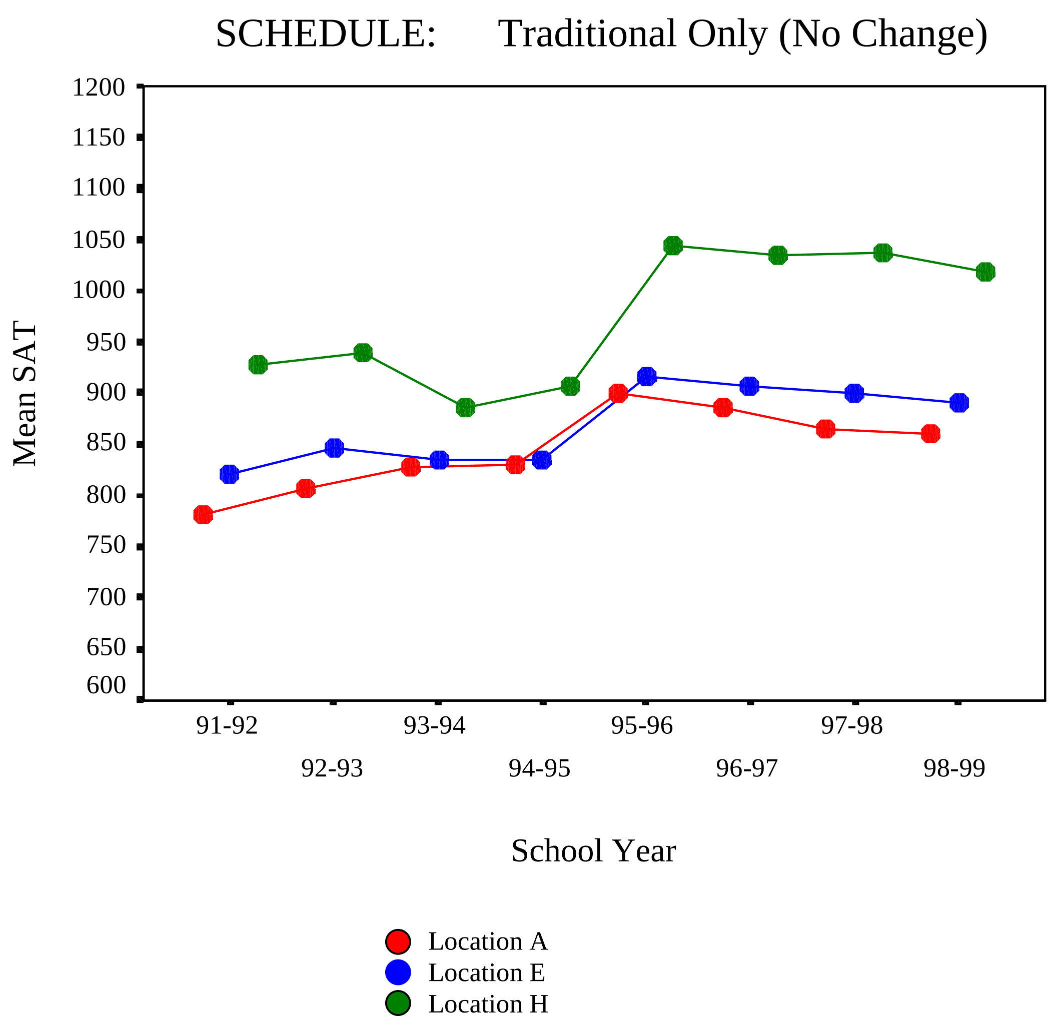


APPENDIX I

Mean SAT Score, 1991-1992 through 1998-1999

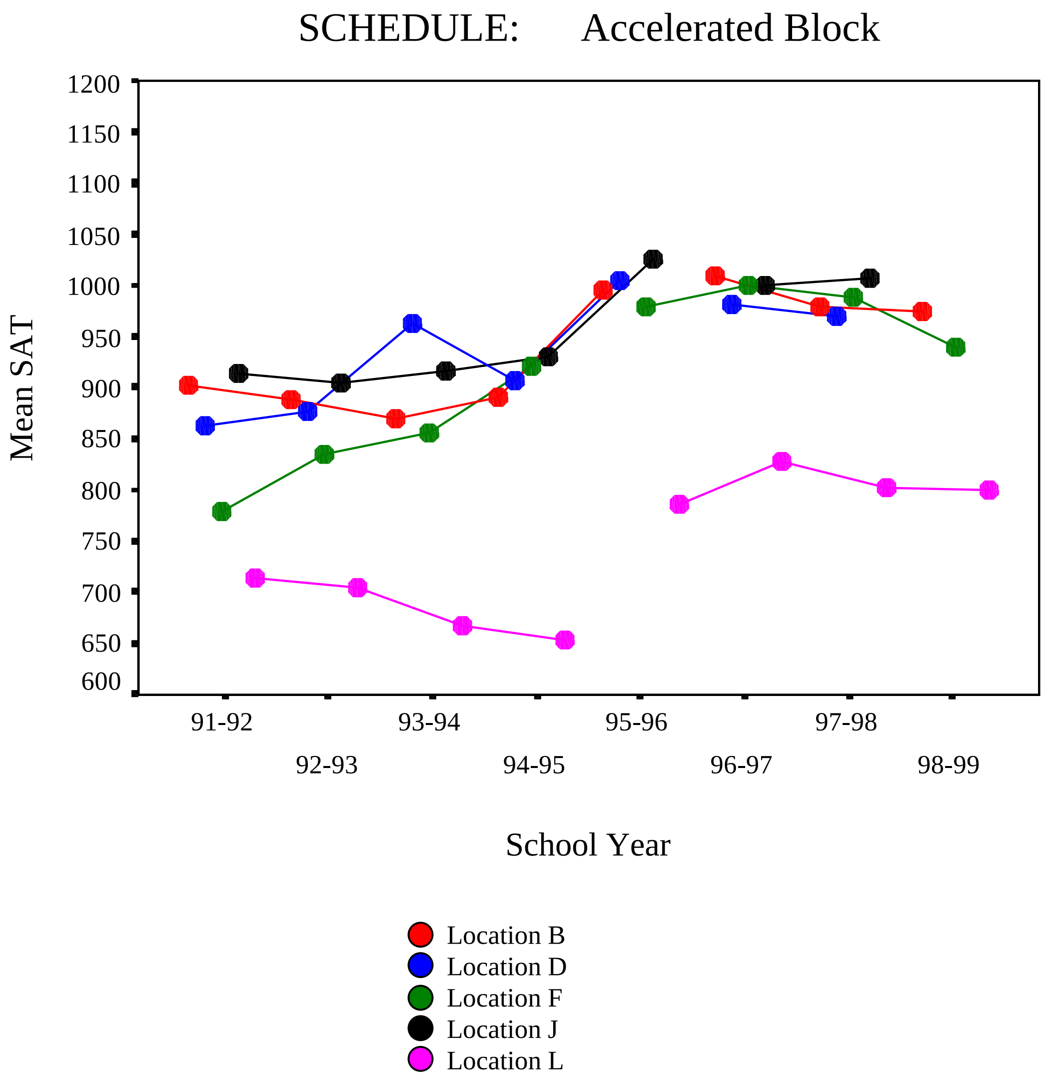
Graph I1

<u>Traditional Only Schedule Schools</u>



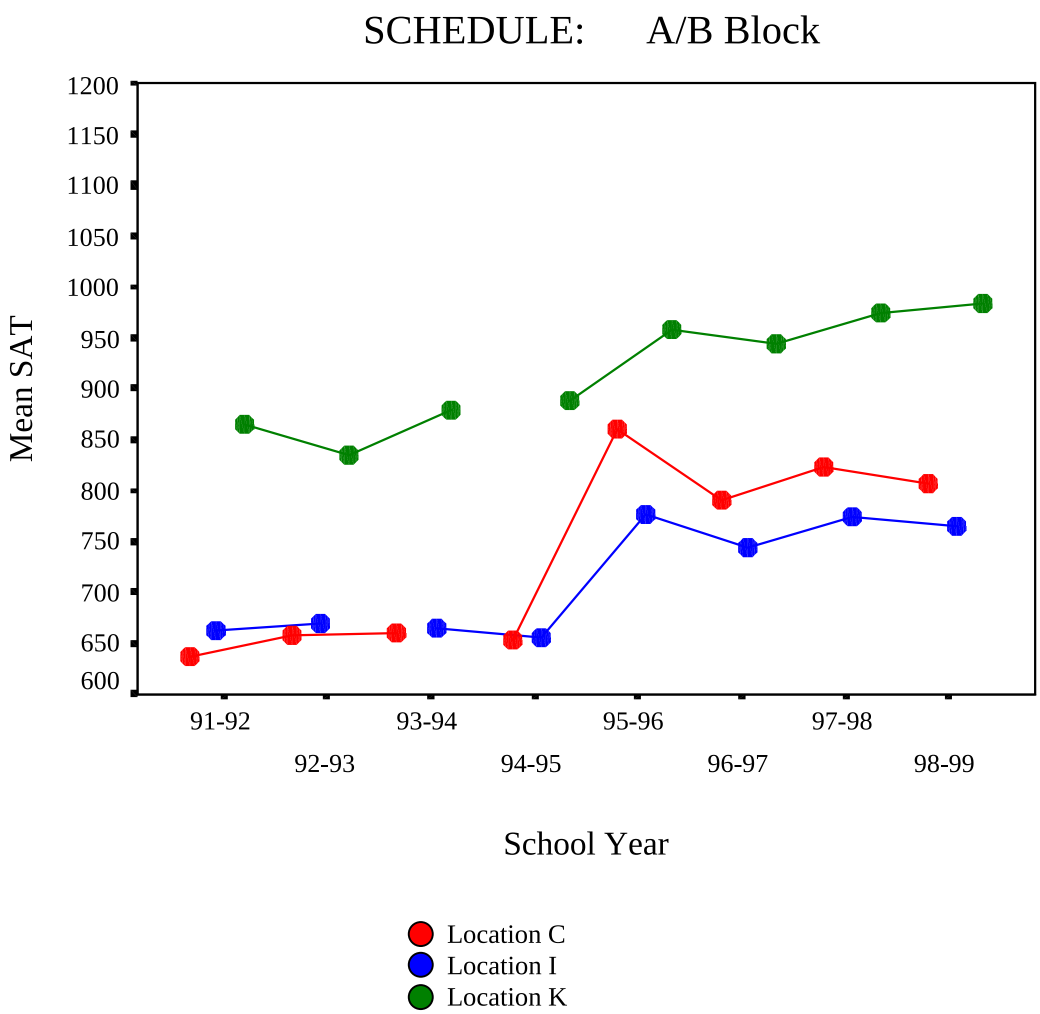
Graph I2

Accelerated Block Schedule Schools



Graph I3

A/B Block Schedule Schools

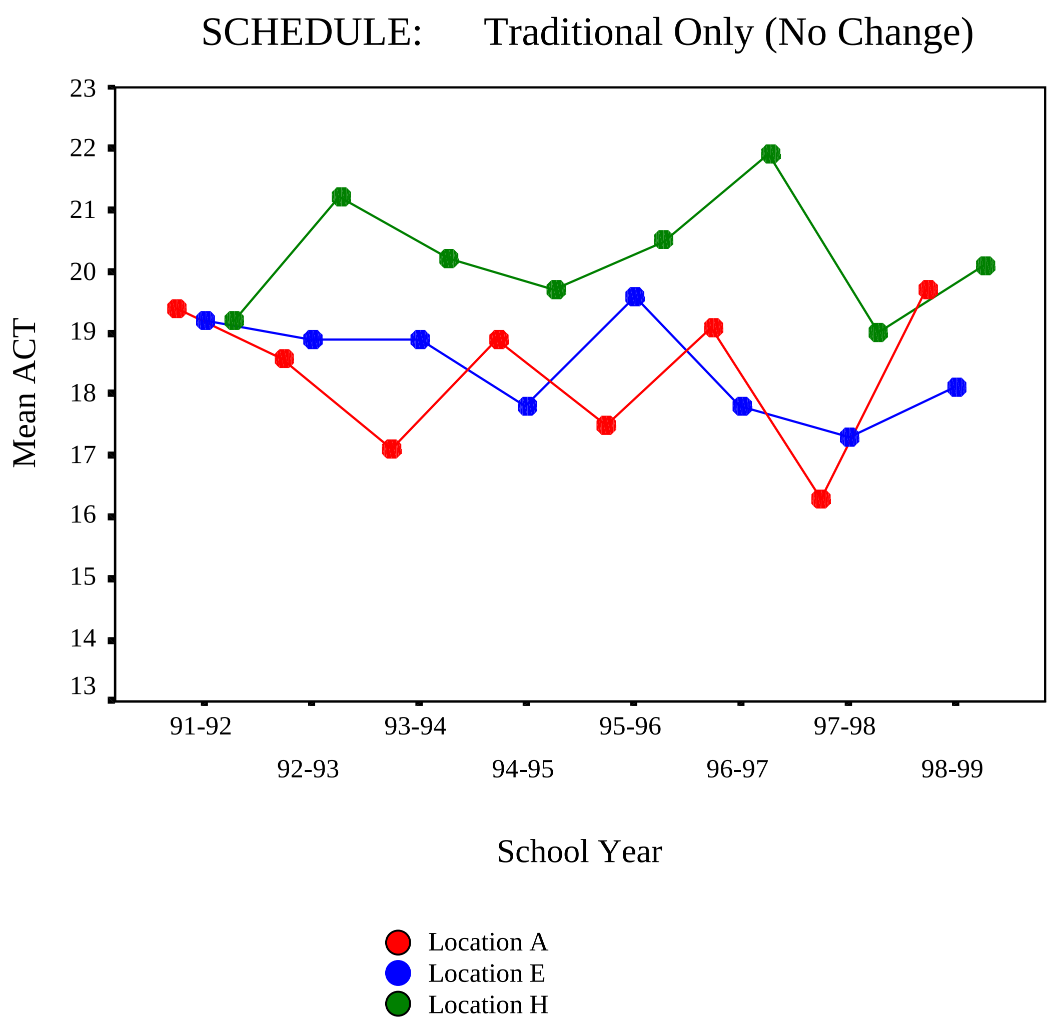


APPENDIX J

Mean ACT Score, 1991-1992 through 1998-1999

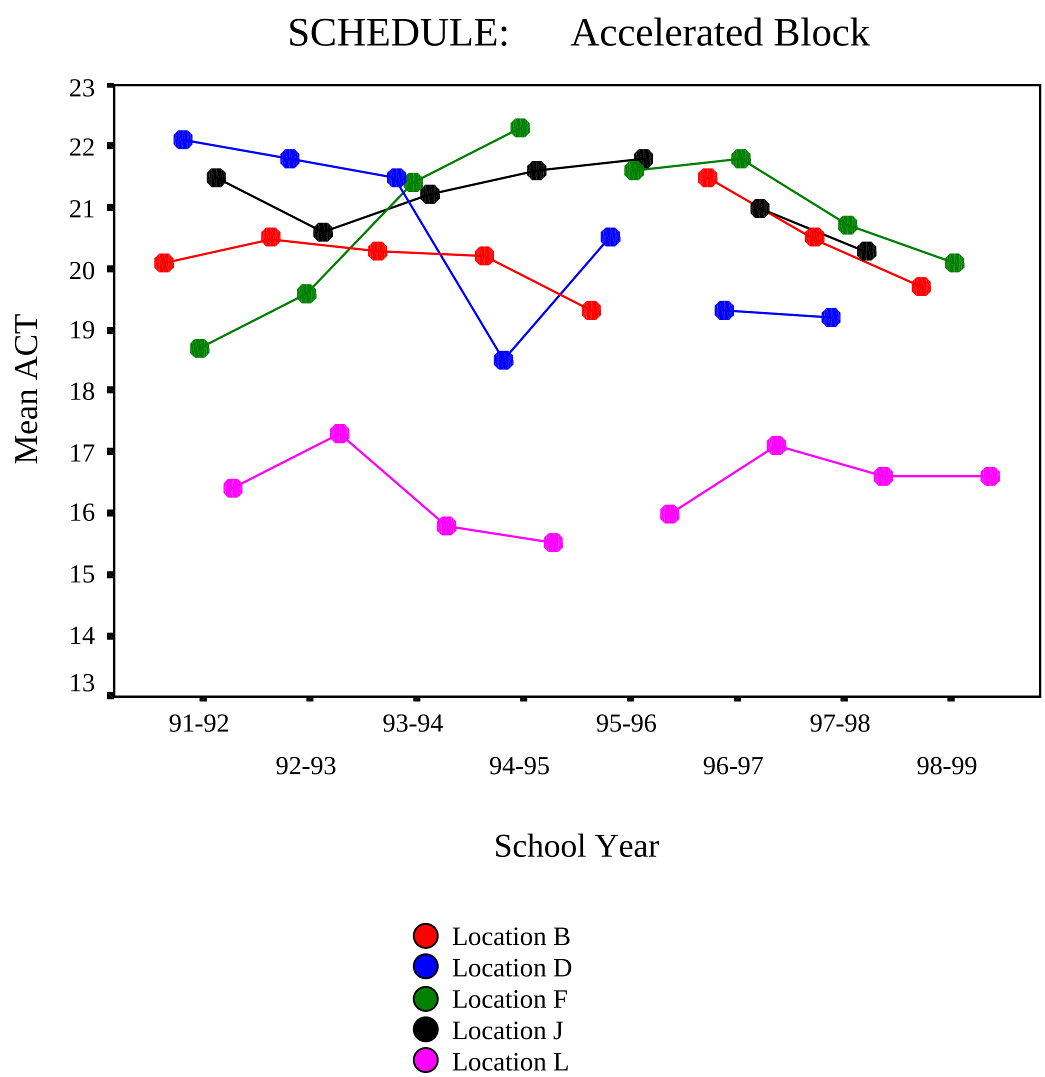
Graph J1

Traditional Only Schedule Schools



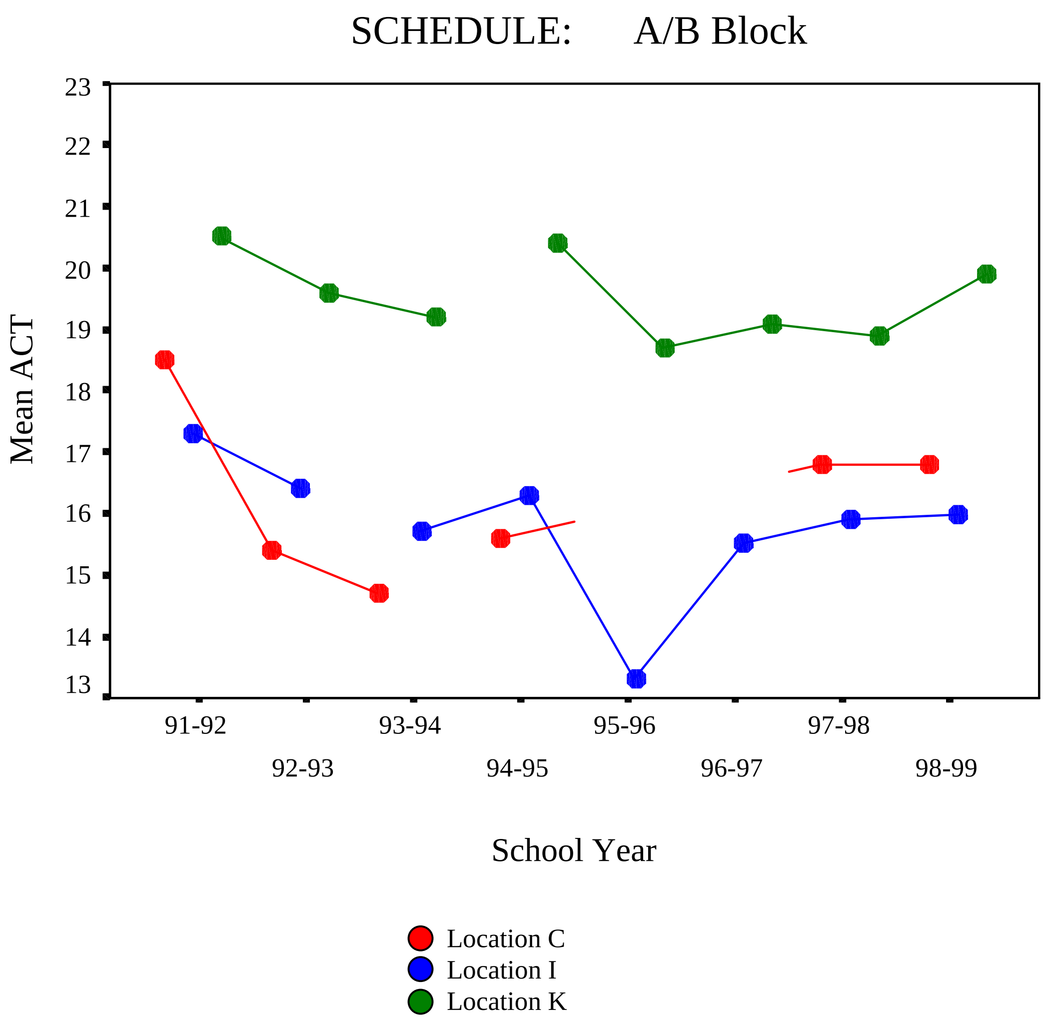
Graph J2

Accelerated Block Schedule Schools, Mean ACT Score, 1991-1992 through 1998-1999



Graph J3

A/B Block Schedule Schools

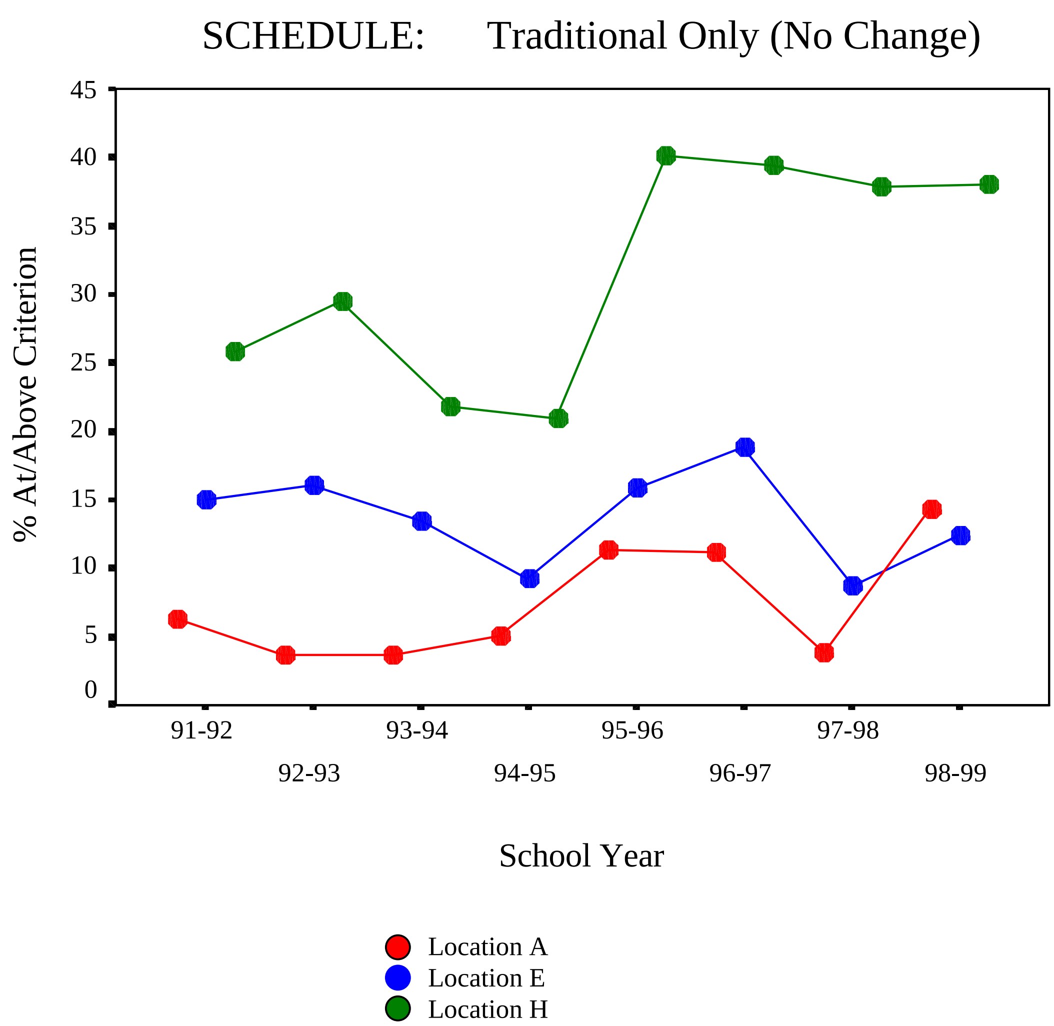


APPENDIX K

Percentage of Students at or Above the Criterion on the SAT/ACT College Admission Test, 1991-1992 through 1998-1999

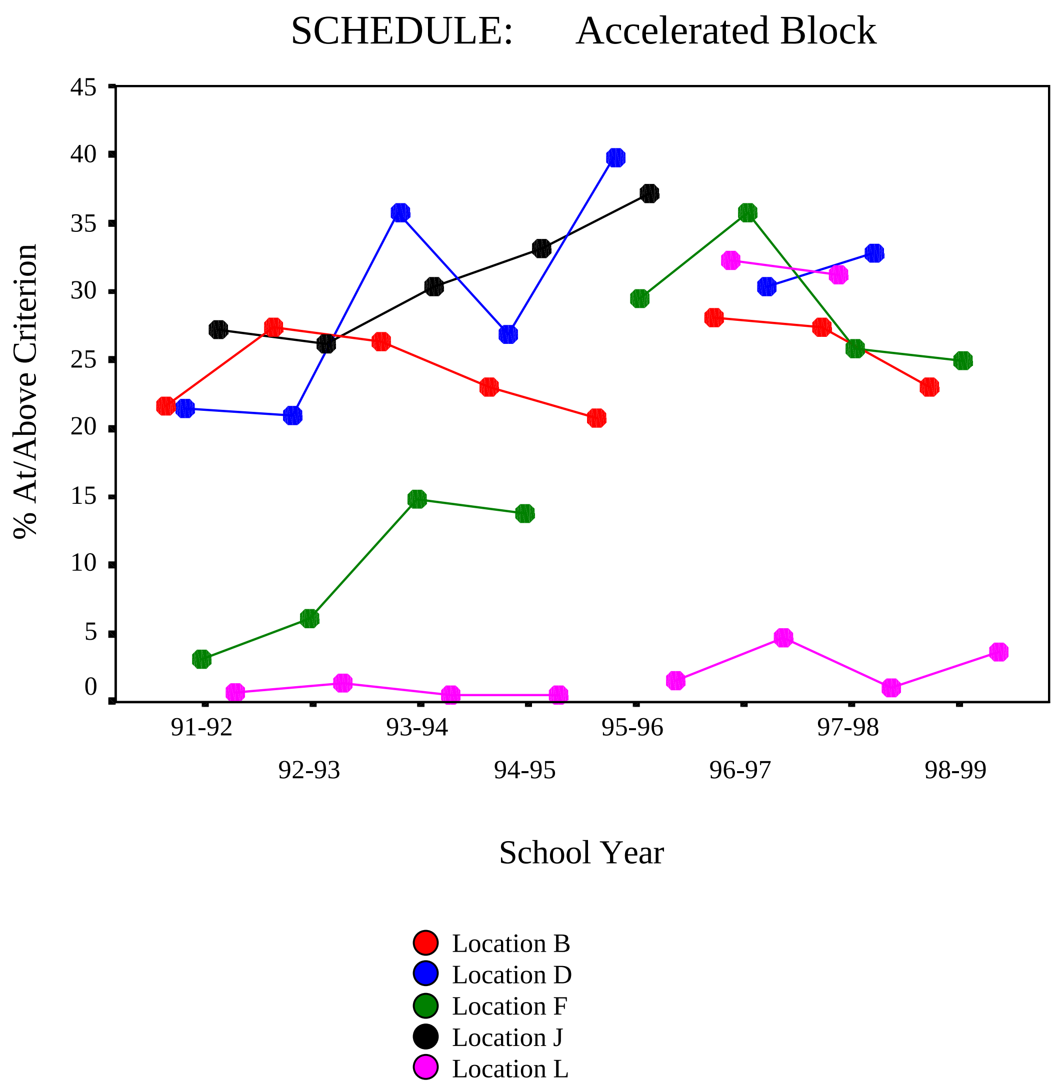
Graph K1

Traditional Only Schedule Schools,



Graph K2

<u>Accelerated Block Schedule Schools</u>



Graph K3

<u>A/B Block Schedule Schools</u>